



Flood Risk Assessment and Drainage Strategy

HMG Paints Ltd.

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29/09/2020

Christopher Acton
Director
Chris.acton@clancy.co.uk
0161 613 6000

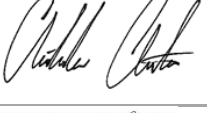
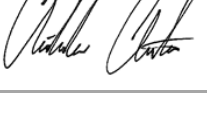
enquiries@clancy.co.uk
www.clancy.co.uk

Clancy Consulting Limited
Dunham Court
2 Dunham Road
Altrincham
Cheshire
WA14 4NX

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Document Origin

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Executive Summary

Introduction	Clancy Consulting Ltd has been commissioned by HMG Paints Ltd. to undertake a Flood Risk Assessment and Drainage Strategy for the proposed works at HMG Paints Ltd located on Collyhurst Road, Cheetham Hill, Manchester. This Flood Risk Assessment has been prepared in accordance with the Technical Guidance to the National Planning Policy Framework.
Existing Site Conditions	The site currently comprises a mixture of a warehouse buildings, outer buildings, temporary storage containers, concrete courtyard hardstanding areas and small grassed areas. The site is bound by the River Irk to the north, south and west with Collyhurst Road to the east. Moston Brook also joins the River Irk just north of the development area. From the topographical survey the site levels range from 31.747m to 32.850m AOD.
Development Description and Planning Context	The proposals are to provide a warehouse building to provide a new storage facility for the open storage areas currently being used in the courtyard area. External external yard area and to provide access/egress yard adjacent to Collyhurst Road.
Definition of Flood Hazard	The River Irk located adjacent to the site is a non-tidal Main River which is a tributary of the River Irwell in the centre of Manchester and is the prime source of flood risk to the site.
Probability (Rivers/fluvial)	The EA Risk of Flooding from Rivers and Sea mapping indicates that the proposed development site has greater than a 1% annual probability of flooding from the River Irk. This map shows the indicative extent of the flooding if there were no flood defences or certain other manmade structures.
Climate Change	As the EA modelling data is from 2011, only the implications of climate change up to 20% are available. The EA have advised that 35% climate change flood level should be used.
Development Proposals	The technical guidance to the NPPF states that developments of a less vulnerable category are appropriate within Flood Zone 2 and 3a.
Flood Risk Management	Due to potential flood risk from the River Irk flood risk management measures will be required as outlined in the recommendations section below.

Off Site Impacts	The proposed development surface water will discharge at reduced rates via the provision of attenuation. Therefore, the development will not increase flooding adjacent to or downstream of the site for the lifetime of the development.
Residual Risks	The residual risk of flooding from the River Irk is not impacted due to the levels of the development compared with the flood modelling levels provided by the EA. The investigations carried out as part of this flood risk assessment and flood risk management measures proposed have demonstrated that the development doesn't increase flood risk elsewhere.
Recommendations	The following recommendations are made to reduce flood risk and promote a sustainable and practicable drainage strategy for the proposed development: The proposed river flood level used to compare flood volumes for the existing and proposed scenario is the 1 in 100 year plus 35% climate change, as requested by the Environment Agency. This level is predicted at 33.16m AOD. Proposed ground levels should be designed to maintain or better the existing flood volume. The proposed building is designed to flood with the slab level set at 32.4m AOD to achieve this. The proposed surface water drainage system should be designed to accommodate the 1 in 30-year rainfall event without any surface water flooding and should be capable of retaining the 1 in 100-year plus climate change (40%) storm event on site without flooding. The proposed surface water runoff should be limited to 50% of existing flows (22.5 l/s) for all storms up to and including the 100-year return period with a 40% allowance for climate change, attenuation is required which provides in the order of 116-197m³ of surface water storage. The proposed building should be allowed to flood incorporating a system to allow flood water to enter and exit the building. The proposed building has been relocated to avoid creating newly built development over the Moston Brook sub-surface culvert.

In relation to the external associated yard, it is proposed to provide a dished area, to account for any potential spillages. This will restrict any spillages off site and reduce the risk of contaminants entering the river.

Any spills that occur, should be contained locally, and disposed of as part of the operation response.

Full retention interceptors should be installed as part of the Surface Water drainage system.

Existing overland flow paths that occur due to river flooding should be maintained.

To the west of the building an access strip will be provided between the proposed structure and the existing boundary wall. The access strip will provide a minimum 3m width, providing access for emergency repairs and maintenance to the river/wall. This represents a significant improvement on existing conditions.

It is recommended that an inspection of the riverbank retaining structure is undertaken and any repairs carried out as part of the development proposals.

The foundations proposed for the west and northern part of the building should be designed not to impact on the existing river wall.

The site management should register to receive flood warnings.

The Flood Warning & Evacuation Plan for the site should be updated to accommodate the proposed development prior to occupation, with this information being made available to any subsequent users.

We recommend electrical points to be set minimum 1.2m above slab level (33.6m AOD), this provides 440mm freeboard above the +35% river flood level.

The type of attenuation tank used is to be considered, to aid maintenance following extreme flood events and to reduce the risk of silt and debris build up.

Contents

Executive Summary

1.0 Introduction

1.1 Terms of Reference

1.2 National Planning Policy Framework

2.0 Background Information

2.1 Site Details

2.2 Approach to the Assessment

3.0 Flood Risk Assessment

3.1 Sequential and Exception Tests

3.2 Definition of Flood Hazard

3.3 Probability of Flood Risk

3.4 Climate Change

3.5 Detailed Development Proposals

4.0 Flood Risk Management

4.1 Fluvial and Surface Water Flood Risk Mitigation - Finished Surface Levels

5.0 Drainage Strategy

5.1 Surface Water Drainage

5.2 Foul Water Drainage

6.0 Access, Egress & Evacuation

6.1 Safe Access & Egress

6.2 Flood Warning & Evacuation

7.0 Off-Site Impacts

8.0 Overland Flow & Flood Routing Considerations

9.0 Residual Flood Risk

10.0 Recommendations

Appendices

Appendix A	Site Location Plan
Appendix B	Topographical Survey
Appendix C	Culvert Survey
Appendix D	Environment Agency Flood Data
Appendix E	Proposed Site Plans
Appendix F	UU Sewer Records
Appendix G	Borehole Logs and Location Plan
Appendix H	Flood Volume Extents and Sections
Appendix I	Drainage Strategy

1.0 Introduction

1.1 Terms of Reference

- 1.1.1 Clancy Consulting Ltd has been commissioned by HMG Paints Ltd to undertake a Flood Risk Assessment and Drainage Strategy for the proposed HMG Paints Ltd storage facility works in Cheetham Hill, Manchester.
- 1.1.2 This Flood Risk Assessment has been prepared in accordance with the Department for Communities and Local Government (DCLG) Planning Practice Guidance website section on 'Flood Risk and Coastal Change' and the Site-Specific Flood Risk Assessment Checklist.
- 1.1.3 This report has been produced on behalf of the Client, HMG Paints Ltd, and no responsibility is accepted to any third party for all or any part. This report should not be relied upon or transferred to any other parties without the express written authorisation of Clancy Consulting Ltd. If any unauthorised third party comes into possession of this report, they rely on it at their own risk and the authors owe them no duty of care or skill.

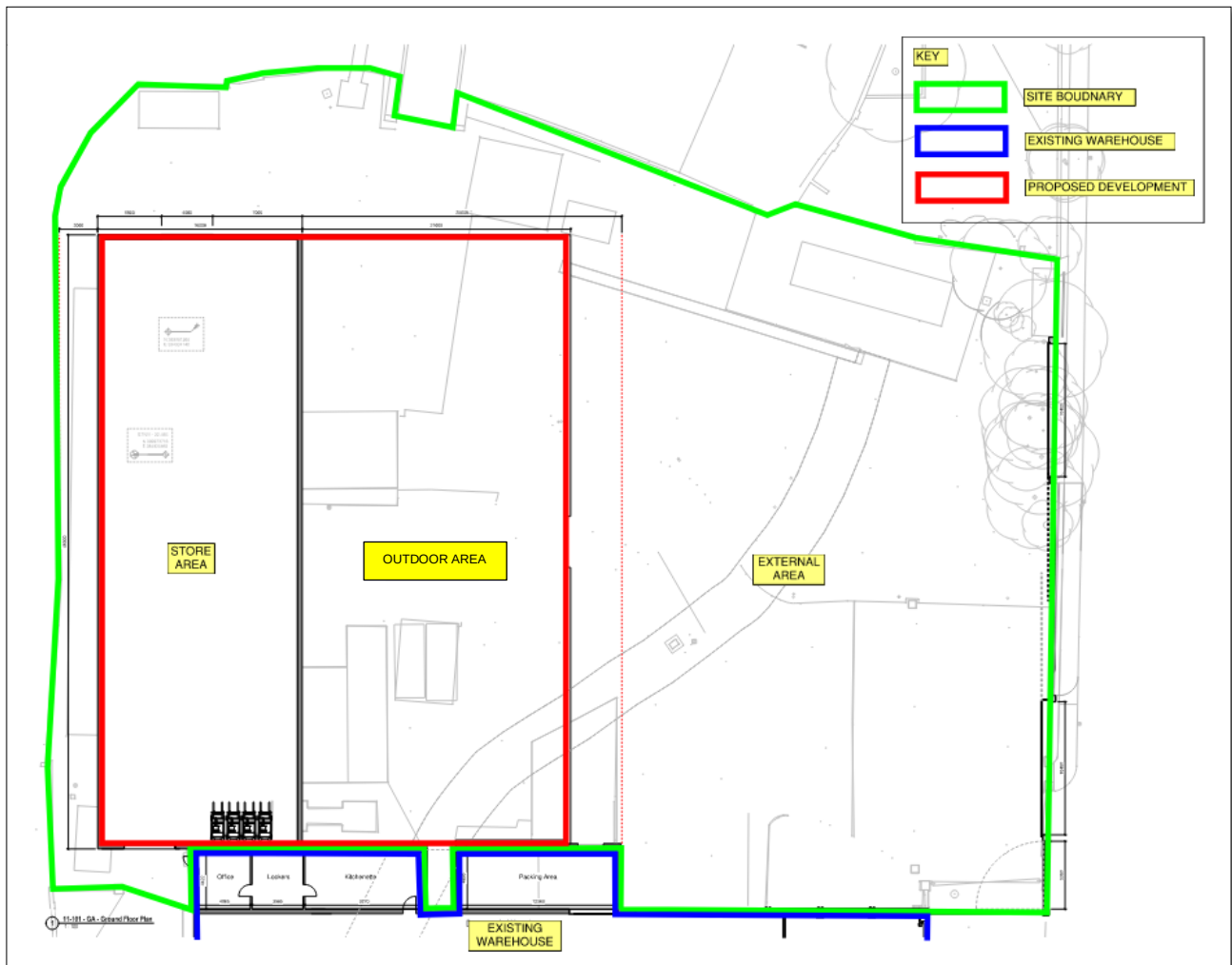
1.2 National Planning Policy Framework

- 1.2.1 The National Planning Policy Framework (NPPF) was published on 27 March 2012, with the latest update published in August 2022. This update provides significant refresh to the guidance and brings it up to date and in line with the latest policy position on flood risk.
- 1.2.2 Planning Practice Guidance to the NPPF regarding Flood Risk and Coastal Change has been published and this site-specific FRA is written in compliance with this guidance.
- 1.2.3 The NPPF, and supporting technical guidance, can be viewed free of charge from the GOV.UK website.

2.0 Background Information

2.1 Site Details

- 2.1.1 Figure 2.1 below indicates the location of the proposed developed site area, with a wider site location plan included in **Appendix A**. A number of sources have been used to assess the local topography and current site use.



*Figure 1 HMG Paints Ltd Storage Facility Works
– Site Layout*

- 2.1.2 The approximate site boundary is outlined on Figure 1 above. The overall HMG Paints site has an area of approximately 3.8 hectares with the proposed site development bounded green in figure 1, has an area of 0.45 hectares and is located just northern of the city of Manchester centred on OSGR 384926E 399921N.
- 2.1.3 The development area is bound by the River Irk along the northern, southern and western site boundary, existing HMG Paints warehouse is directly to the south, with Collyhurst Road to the eastern boundary.

- 2.1.4 The site is an active paint manufacturing plant with a number of warehouse / office buildings, hardstanding courtyard areas and some small grassed landscaped areas.
- 2.1.5 A topographical survey of the site has been included in **Appendix B**. The site levels within the development area ranging from 31.747m AOD to 32.850m AOD to the west.
- 2.1.6 There is a large culvert known as the Moston Brook sub-surface culvert, which runs through the site. The Culvert enters the site from the north east of the site and continues south crossing the development area and below the existing warehouse building before entering back to the main river. Figure 2 below shows the approximate location of the culvert running through the site. The proposed storage facility extension has been located outside of the culvert and easement zone. There has also been a detailed survey of the culvert which can be found in **Appendix C**. The results of the survey confirm the size of the culvert to be 4m wide and 1.8m depth, vertical brick sides with flat base and a brick arch top.

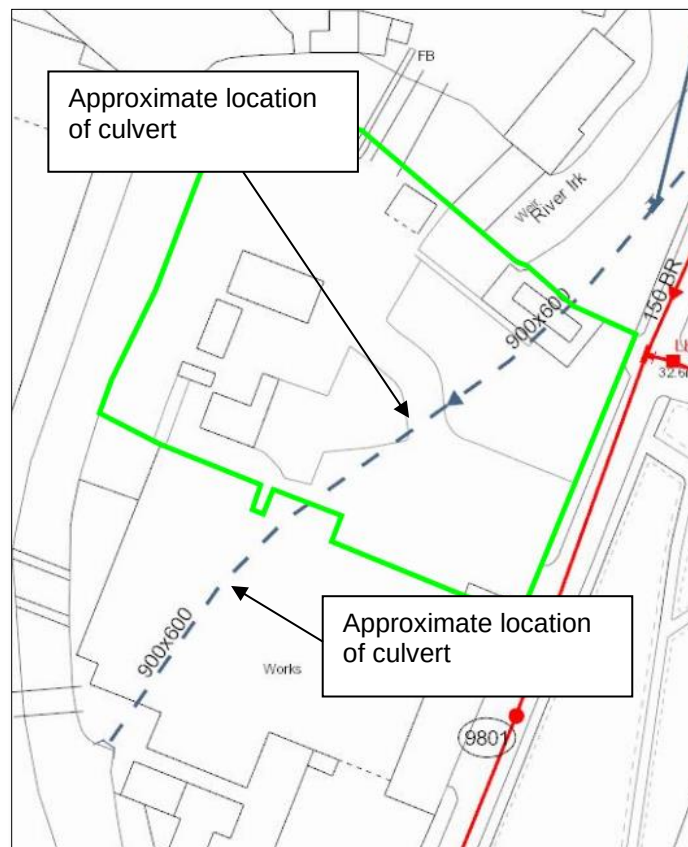


Figure 2 – Culvert Location

- 2.1.7 The proposed storage facility is located away from the existing culvert however surfacing works will be carried out above the culvert. The Client has been made aware of their maintenance responsibilities to ensure they do not affect the culvert structure and its function.
- 2.1.8 The watercourses are indicated on Figure 3 below.

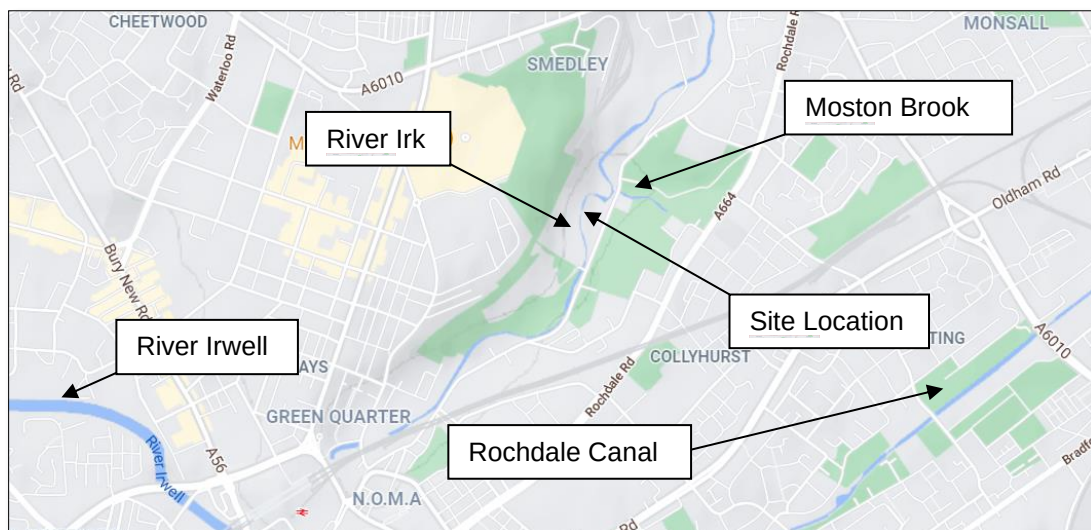


Figure 3 – Watercourse Location Plan

Table 1: Overall Catchment Context and Local Watercourse Classifications

Classification	Name	Description
Main Rivers	River Irk and Moston Brook	The Moston Brook connects to the River Irk via the Moston Brook sub-surface culvert south of the development site. River Irk bounds the site from Northern, Western and Southern boundary. Both watercourses are non-tidal. The Main River Irk which flows from north to south heading towards Manchester City Centre connecting to the River Irwell. The River Irk has an existing weir located directly north of the site.
Ordinary Watercourses	Culvert	Moston Brook sub-surface culvert runs through the site.
Canals	Rochdale Canal	The closest canal is the Rochdale Canal which is located approximately 1.25km east of the site.

2.2 Approach to the Assessment

- 2.2.1 The Environment Agency (EA) has been contacted regarding predicted floodplain flood levels and flood extent data. They have provided a comprehensive response containing modelled flood data and defence levels.
- 2.2.2 This study has been supplemented by additional information from the Environment Agency (EA) and the Local Water Authority United Utilities.
- 2.2.3 This assessment seeks to draw together the relevant data information from these sources and to collate this with the findings of our investigations and discussions to assess the flood risk and drainage strategy for this site.

- 2.2.4 The EA have confirmed that the 1 in 100 year plus 35% climate change flood level should be predicted and used to compare existing flood volumes against the proposed flood volumes up to this level. See correspondence and flood data included within **Appendix D**.

3.0 Flood Risk Assessment

3.1 Development Description and Planning Context

- 3.1.1 The development proposals are to maintain two small lean to buildings that are connected to the north warehouse facade and construct a new storage facility extension to the east part of the site (Approximately 16m x 48m). There is an external area which will be dished to direct spillages to the drainage system which can be isolated and external access/egress areas adjacent to Collyhurst Road.

The proposed site plans are included in **Appendix E**.

- 3.1.2 From the EA data for the area shows the site falls within Flood Zone 2 and 3a with the majority of the development area within Flood Zone 3a. See figure 4.
- 3.1.3 The site lies within a 'high probability of flooding' category from rivers, meaning that each year this area has a chance of flooding of greater than 1%.

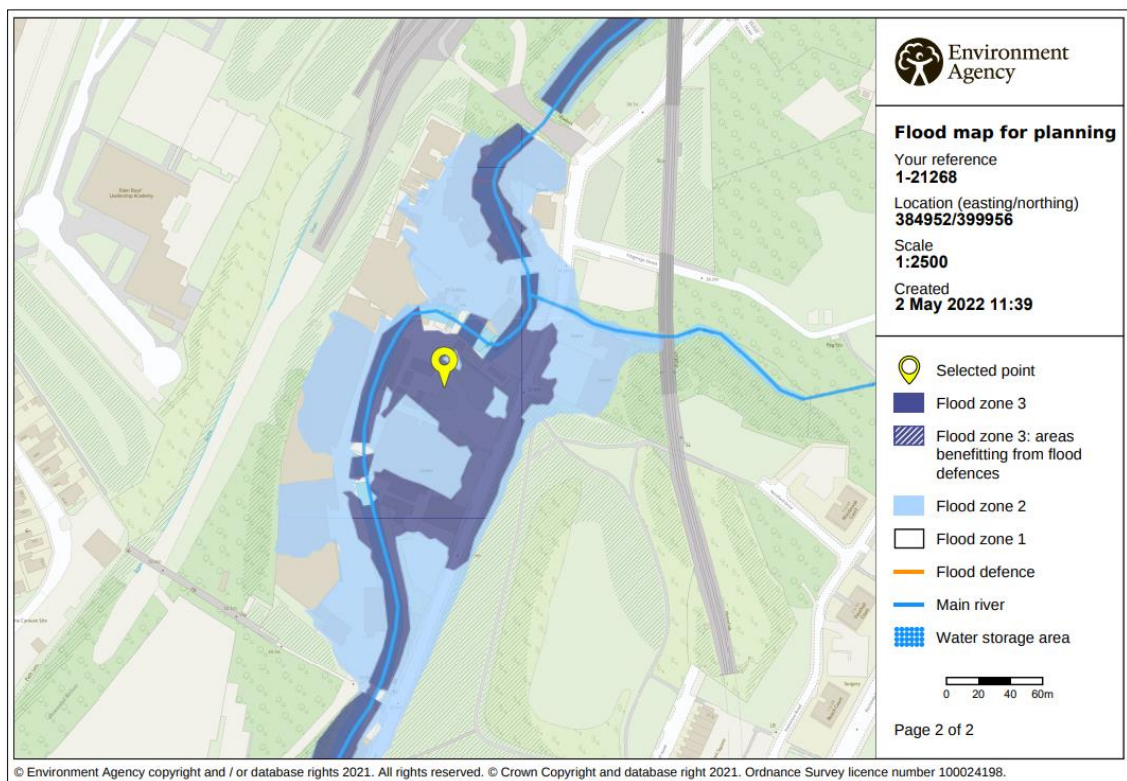


Figure 4 – EA Flood map for planning.

- 3.1.4 In accordance with the NPPF, the proposed storage facility development falls under the **Less Vulnerable** category in terms of flood risk.

3.2 Sequential and Exception Tests

- 3.2.1 The Sequential Test is designed to steer development towards areas of lower flood risk and is required to be completed for development within Flood Zone 2 and 3a. As the site falls within the less vulnerable category within Flood Zone 2 and 3a, the development can be seen as sequentially preferable and deemed to pass the Sequential Test.
- 3.2.2 Notwithstanding the above, our client has reviewed the scheme and its location, as there are several competing financial viability issues. Not least that there is a short term need for storage provision on the site as part of immediate business continuity.
- 3.2.3 Competing with the fact that the site may be subject to a compulsory purchase order as a result of council regeneration plans within the next 15 years. Which will dictate a complete relocation in this time frame.
- 3.2.4 Finding a suitable site for relocation that works for the entire business and the extremely local current staff base has been explored, although the expansion is needed sufficiently urgently that a sizable financial commitment is warranted for the proposed extension in the short term.
- 3.2.5 Its worth nothing that the site is an existing functional site, which requires an extension to the processes that are already in place. The proposed development is for a storage of goods manufactured on the site and therefore needs to be operationally linked. The development area is already predominantly used for storage but in an inefficient manner. The proposed development seeks to improve efficiency with modern storage systems.
- 3.2.6 Any opportunity to relocate the extension, which is only a small part of the whole site operation, would necessitate the relocation of all other facilities which is not economically viable.
- 3.2.7 The NPPF states that developments of the less vulnerable category are suitable within Flood Zone 2 and 3a without the requirement of an Exception Test.

Table 2: Flood Risk Vulnerability and Flood Zone Compatibility (Source: NPPF)

Table 2: Flood risk vulnerability and flood zone 'incompatibility'					
Flood Zones	Flood Risk Vulnerability Classification				
	Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

Notes to table 2:

- This table does not show the application of the [Sequential Test](#) which should be applied first to guide development to the lowest flood risk areas; nor does it reflect the need to avoid flood risk from sources other than rivers and the sea;
- The Sequential and [Exception Tests](#) do not need to be applied to those developments set out in [National Planning Policy Framework footnote 56](#). The Sequential and Exception Tests should be applied to 'major' and 'non major' development;
- Some developments may contain different elements of vulnerability and the highest vulnerability category should be used, unless the development is considered in its component parts.

† In Flood Zone 3a essential infrastructure should be designed and constructed to remain operational and safe in times of flood.

** In Flood Zone 3b (functional floodplain) essential infrastructure that has passed the Exception Test, and water-compatible uses, should be designed and constructed to:

- remain operational and safe for users in times of flood;
- result in no net loss of floodplain storage;
- not impede water flows and not increase flood risk elsewhere.

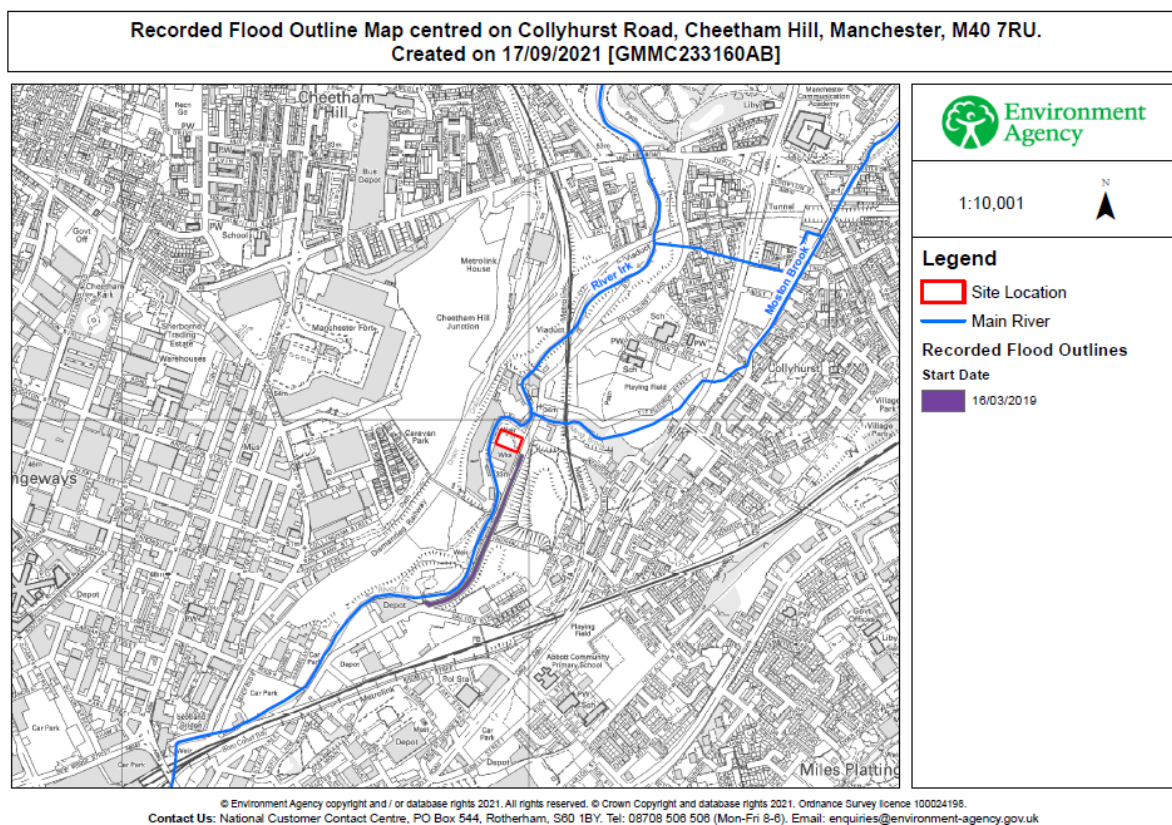
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Revision date: 25 08 2022

3.3 Definition of Flood Hazard

Historic Flooding

- 3.3.1 Figure 5 below shows the Environment Agency's Historic Flood Map, which indicates that the development site has no record of flooding from the main river. There has been one recorded flood event dated the 16th March 2019 which runs along Collyhurst Road to the south of the site and lie outside the site boundary. The dataset shows the maximum extent of the flood record that has occurred as a result of flooding from rivers, the sea and groundwater sources since records began. The dataset does not account for flooding from other sources, such as sewer flooding or surface water flooding, nor is it exhaustive as it may not include all previous flooding incidents and does not provide information regarding event dates. However, the dataset does provide an insight into the potential for flooding from nearby sources.



*Figure 5 - Flood Event Outlines, Cheetham Hill, Manchester.
– Historic Flood Map (Source: EA)*

The potential sources of flooding in the vicinity of the site are as detailed below:

Fluvial Flood Risk

- 3.3.2 The River Irk is the primary source of flood risk to the site. The site is bound by the river as it meanders around the site to the west from the north to south. Flood risk associated with the River Irk is covered in Section 3.4 –

Probability of Flood Risk. Detailed flood modelling and defence information along with associated mapping provided by the EA is included at **Appendix D**.

- 3.3.3 The EA Risk of Flooding from Rivers and Sea mapping, shown below in Figure 3.2, indicates that the proposed development site has between a 1 in 100 and or greater annual probability of flooding from the River Irk. This map shows the indicative extent of the flooding, if there were no flood defences or certain other manmade structures, such as surface water sewers, and channel improvements.
- 3.3.4 Figure 6 shows the approximate location of the model measurements. Number 7 is located adjacent to the site and this data will be used as part of this assessment. Node number 6 is also located close to the site however this node point is located at the upper weir level, therefore not used.

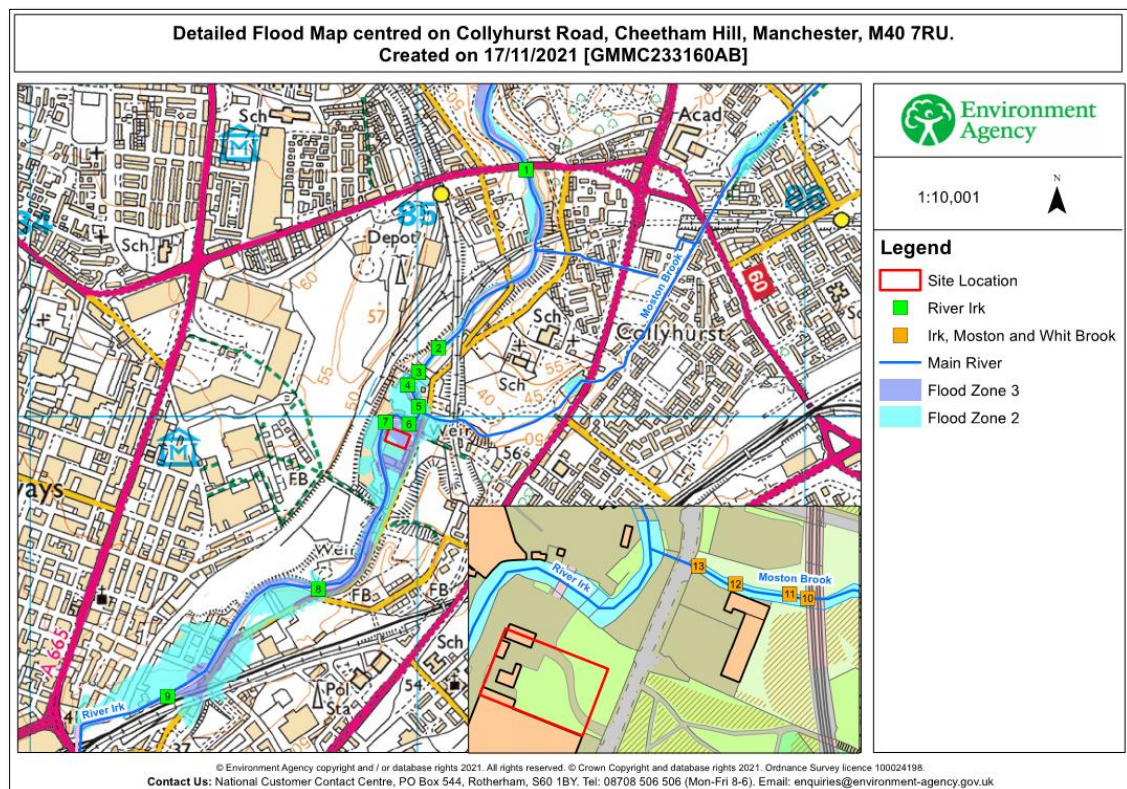


Figure 6 - HMG Paints Ltd. Development
- Risk of Flood from Rivers and Sea (Source: EA)

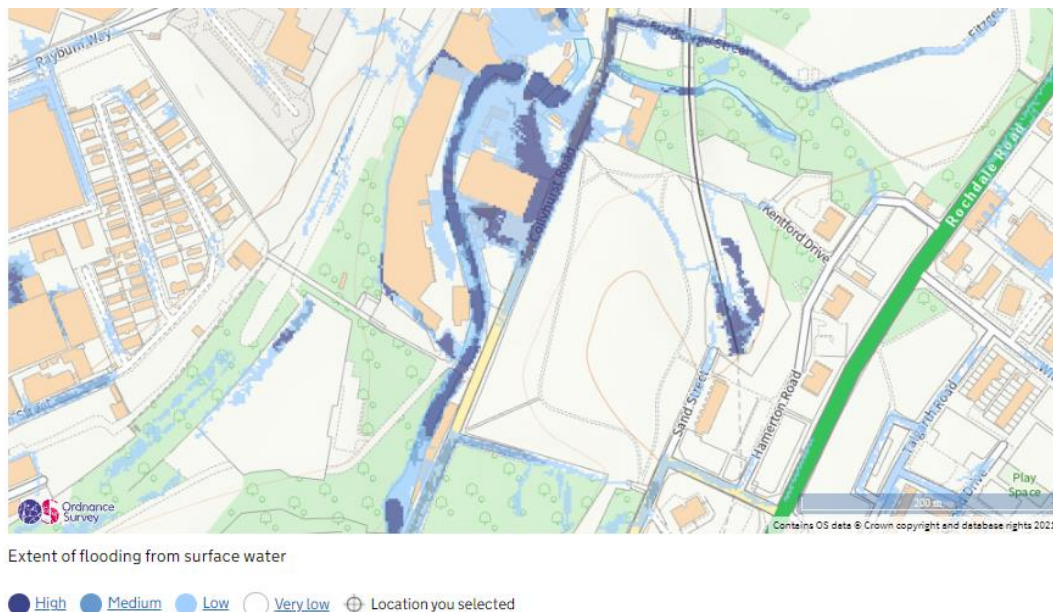
Tidal Flood Risk

- 3.3.5 The River Irk is a non-tidal river. Therefore, the site is not at risk of flooding from tidal sources.

Surface Water Flood Risk

- 3.3.6 The site area is predominantly hard standing with some small areas of soft landscaping.

- 3.3.7 The topography of the site is generally flat which is elevated approximately 2.5m above the River Irk typical water level. Normally flat areas do not tend to generate any significant amount of sheet runoff and any surface flooding from pluvial sources tends to pond in localised depressions.
- 3.3.8 Figure 7 below shows the Risk of Flooding from Surface Water and indicates areas of the site development area is at medium to high risk of flooding from surface water. These areas of risk are likely associated with low spots in the exiting ground. The surface levels and drainage infrastructure will be improved as part of the proposed development which should improve its current situation.



*Figure 7 - HMG Paint Ltd Development
– Risk of Flooding from Surface Water (Source: EA)*

Flood Risk from Ground Water

- 3.3.8.1 Based on river water levels and site investigation report, ground water levels are expected to be c.2.5m-3m below ground level.
- 3.3.9 The proposed storage facility building extension Finishd Floor Level (FFL) will be determined based on existing ground levels with the proposed slab set at a reasonable level to suit adjacent levels. As a result, it is not considered that the ground water poses a risk to the development.

Flood Risk from Water Bodies (Reservoirs)

- 3.3.10 There are no water bodies within 3km of the site. Therefore, there is no risk from flooding from Water Bodies.

Flood Risk from Sewers and Infrastructure

- 3.3.11 The local sewers are operated and maintained by United Utilities (UU).

- 3.3.12 UU sewer records indicate a Public Surface Water Sewer (900mm x 600mm) running below the site however this has been confirmed as the Moston Brook sub-surface culvert as described in 2.1.6. A detailed survey has been carried out of the culvert and is included within **Appendix C**.
- 3.3.13 There is a Combined 225mm Public Sewer running south within Collyhurst Road east of the site. A copy of the sewer record plan is included within **Appendix F**.
- 3.3.14 The detailed culvert survey shows connectivity from the exiting site surface water runoff. Most of the site drains at low point gullies direct to the culvert. Other areas within the site discharge to the River Irk.
- 3.3.15 The proposed development will provide improvements to the existing drainage system which includes providing attenuation with restricted runoff rate which will provide a betterment to its current position. Should the current drainage systems be efficiently maintained, it is not considered to be a flood risk.

3.4 **Probability of Flood Risk**

- 3.4.1 The EA Risk of Flooding from Rivers and Sea mapping (shown in Figure 4) indicates that the proposed development site lies within a 'High Probability of flooding' category from rivers, meaning that each year this area has a chance of flooding of greater than 1%. This map shows the indicative extent of flooding, if there were no flood defences or certain other manmade structures, such as surface water sewers, and channel improvements.
- 3.4.2 The EA have provided the product 4 data which shows the model data taken from the River Irk SSFRA 2011 study. Full copies of the modelled and hazard mapping data are included in **Appendix D**.
- 3.4.3 Due to the site area having no historical flooding records, the flood levels provided by the EA have been compared with the Topographical surface levels for the site to confirm whether the site may be affected by flooding from the main river.
- 3.4.4 Using node 7 (adjacent to the site), the 1:100 yr storm event level is 32.21m AOD which is unable to breach the site boundary as the lowest river wall boundary level is 32.235m AOD to the southwest corner of the site.
- 3.4.5 Using node 7 (adjacent to the site), the 1:100 yr storm event plus 20% increase in flow level is 32.77m AOD which is able to breach the site boundary.
- 3.4.6 The EA have recommended that for the purpose of the proposed development, an assessment against the central allowance for the River Irk (+35% cc) in order to ascertain the requirements for flood mitigation and compensatory floodplain storage.
- 3.4.7 The Environment Agency have confirmed they are unable to provide the +35% climate change level. Therefore the flood level (+35%cc) has been derived using the existing modelling results available (100 year, 100 year +20% cc and 1000 year level) to conduct a stage/discharge graph, using node 7.

- 3.4.8 The 1000 yr level is 33.96m. The rainfall intensity of a 6-hour storm event has been assessed for each return periods to determine what climate change percentage on the 100yr would represent the 1000yr level and the result was 65%. When plotting the climate change percentage against level, we get a linear relationship allowing the +35% climate change to be predicted. Therefore the +35% climate change design value is predicted at 33.16m AOD. See figure 9 below.

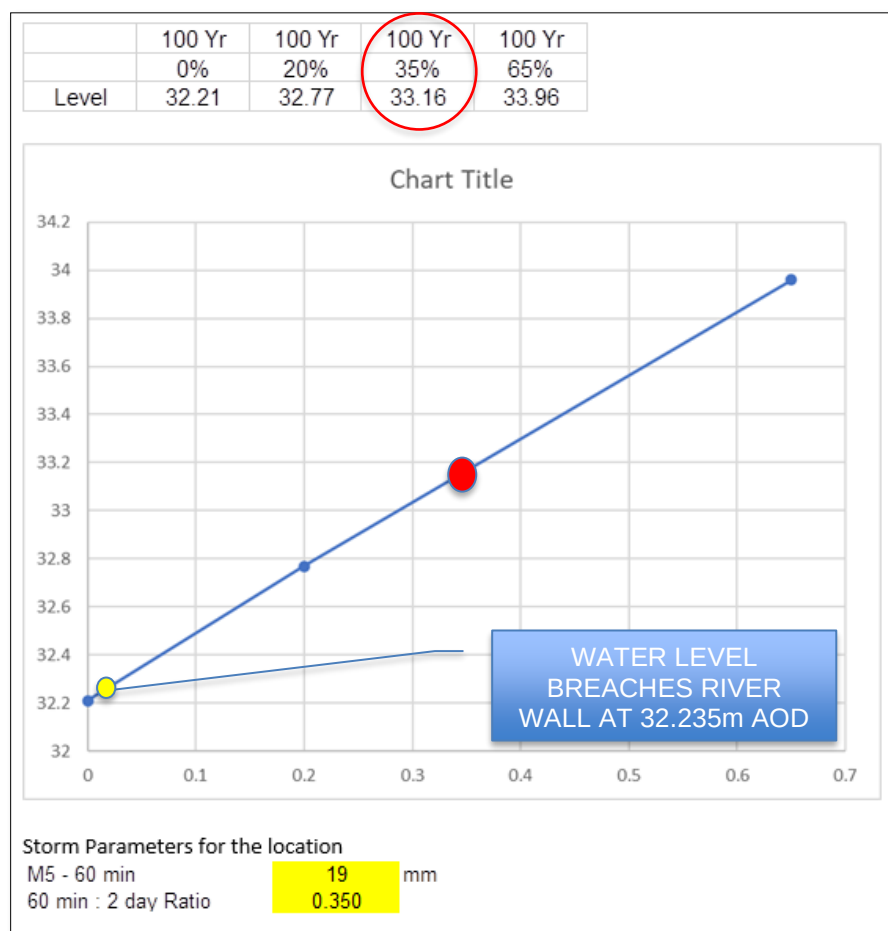


Figure 9 - Predicted 100 year + 35% climate change level

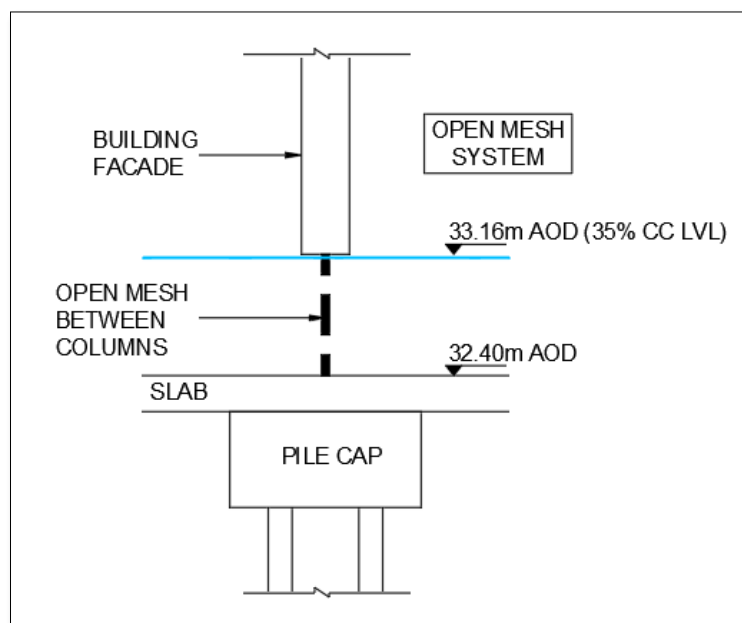
- 3.4.9 The predicted flood level shown with a red dot (33.16m AOD), will be used to demonstrate the proposed site levels and will provide the same or better flood volume storage within the site boundary. **See Appendix H.**
- 3.5 **Climate Change**
- 3.5.1 Climate change is recognised as a factor for consideration in terms of its effects on flood risk. This issue affects the local catchment from fluvial sources in as much as fluvial flood flows are estimated to increase by 30% to 50% for longer lifetime developments.

- 3.5.2 The Environment Agency have confirmed the climate change allowance of 35% is to be used when comparing flood water compensation volumes for both the existing and proposed scenarios.
- 3.5.3 The implications of climate change should also be taken into account in relation to surface water drainage. Peak rainfall intensity for longer lifetime for developments is estimated to increase between 20% and 40% as a result of climate change.
- 3.5.4 There are two separate sources in which the proposed development site could flood. One being from the river, due to the water levels rising during the larger storm events as the wider contributing areas discharge to the river. As the river water level rises, the lowest wall level at c.32.235m AOD will be breached. Based on the graph shown in figure 9, this level suggests the storm event is 1 in 100 year plus 2% climate change (marked with a yellow dot on the graph). In this scenario the below ground drainage system, would become inundated with flood water before the designed below ground system reaches its capacity for a 100 year plus 40% climate change event. With this in mind it was considered to design the below ground drainage system up to the 100 year plus 2% climate change.
- 3.5.5 Another source of flooding would be caused by surface water runoff. It's a reasonable assumption to predict that the proposed drainage system could receive a heavy rainfall event (1 in 100 year plus 40% climate change) prior to the river water level breaching the wall due to the time in which it takes for the wider catchments to reach the river, and subsequently raise the water levels. In this scenario, should the drainage system only have capacity for the 100 year plus 2% climate change, and a plus 40% climate change event happen the site would be flooded by surface water. This could potentially reduce the capacity for flood compensation should the delayed water level rise and breach the wall.
- 3.5.6 Therefore, considering the above, it is proposed to design the surface water drainage system to protect the site using the upper 40% climate change allowance, to maintain flood compensation volumes on the site.
- 3.5.7 In the event that both scenarios happen concurrently, the whole site and below ground drainage system will be inundated with flood and surface water, and overall flood scenarios, mitigation and procedures will apply.
- 3.5.8 Following a flooding event, flood water will utilise the overland flow path to return to the river. As the flood water level drops below the lowest wall level, all flood water within the site will be discharged via the surface water drainage system back to the river, as is the current scenario.

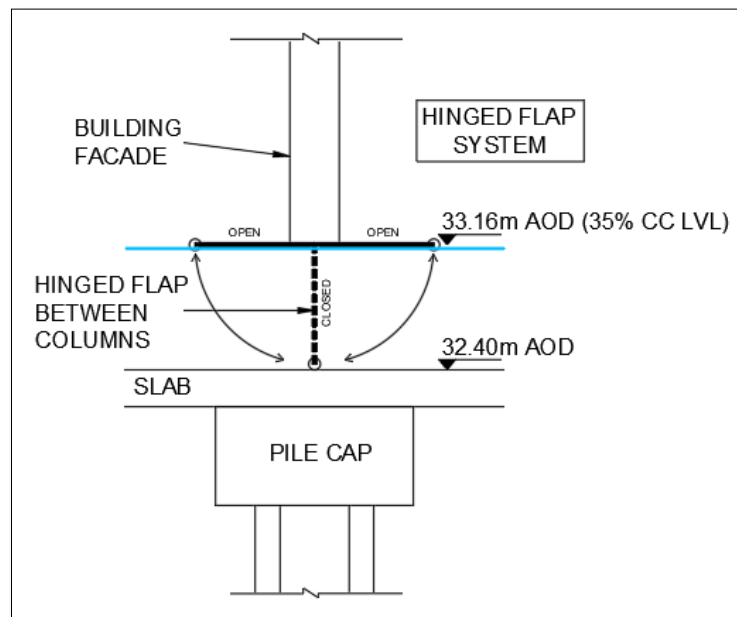
4.0 Flood Risk Management

4.1 Flood strategy and Pollution Control

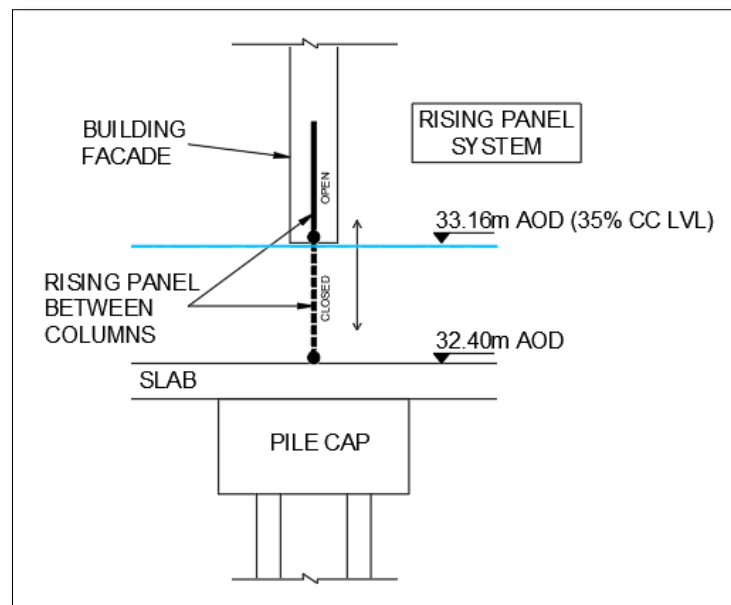
- 4.1.1 The development proposals are to maintain two small lean to buildings that are connected to the north warehouse facade and construct a new storage facility extension to the east part of the site development to improve their efficiency and working environment.
- 4.1.2 It is best practice to raise the ground finished flood levels above the peak level of the 1 in 100-year (1% AEP) plus climate change flood event on-site. However, as the proposed development does not include habitable accommodation, in order to maintain flood storage volumes within the site, the proposed storage facility will be designed and allowed to flood above the 1 in 100 year flood level.
- 4.1.3 The primary objective is to prevent any displacement of flood volume within the site, therefore it is proposed to allow the storage facility to flood and allow for and maintain flow paths to and from the River Irk, as well as protecting the building, making the storage facility a safe environment, providing an environmental seal and preventing small animals/rodents from entering the building.
- 4.1.4 In order to achieve the above, below we have set out three potential options in principle, highlighting both positive and negative aspects of each.
- 4.1.5 It's worth noting that most flood systems are designed to prevent flooding to buildings however to achieve our objective, a bespoke system will be required. See figure 10 below for sections of each system.
1. Open mesh system
 2. Hinged Flap system (Buoyant)
 3. Rising Panel System (Buoyant or Automated)



Open Mesh Section



Hinged Flap Section



Rising Panel Section

Figure 10 – Flood System Sections

The open mesh system is the most fail-safe option without any manual or automated input. Flood water will be allowed to enter and exit the building as required and will be designed to be rodent proof. The negative aspect to this type of system is that it doesn't offer an environmental seal to the building.

The hinged flap system would offer an environmental seal, as the flap would be in panel form with floatation device to the base, allowing the flap to open under water pressure. This would also be rodent proof. The negative aspect to this system would be the interaction to the required space within and external to the building to allow the flap to open fully. There is also a risk that a flap type system could become obscured, prevent the flap from opening.

The rising panel system offers both an environmental seal and is rodent proof. The floatation device to the bottom of the panel, would allow the panel to rise and fall vertically when the flood water is present. This would require a C section guide to each end to allow the panel to operate. The negative aspect to this is that if the panel doesn't rise plumb, it could get stuck when trying to rise. This system could also operate on as an automated system (removing the floatation device) and automatically raised when alarmed by the EA flood warning system. The negative aspect of this is these systems generally rely on a manual switch.

4.1.6 With the above in mind, the preferred option to provide as much benefit to the building as possible is option 3 – Rising Panel System.

4.1.7 The proposed locations of the Rising Panel system will be to all four corners of the building, c.5m in length between the columns as indicated in figure 11 below. Columns are anticipated at 6m centres therefore providing space to house framing etc.



Figure 11 – Open Mesh System Locations (highlighted blue)

- 4.1.8 The building should also be connected to the EA Flood warning system and an evacuation plan is also required to ensure the safety of HMG Paints employees.
- 4.1.9 Regular maintenance of the system should be carried out to maintain its functionality.
- 4.1.10 The proposed storage facility finished floor levels is proposed to match or be similar to the existing ground levels as practical, given it will be a flat slab and has been set at 32.4m AOD. This level ties in with the surrounding site levels. It's worth noting that this level is above the 1 in 100 year flood level, however is below the +20% and +35% flood level.
- 4.1.11 The storage facility will be fitted out with a fixed racking system, to provide elevated storage above the +35% flood level.
- 4.1.12 All electrical points are recommended to be set above the predicted 33.16m AOD level, we suggest min 1.2m above the proposed slab level which is a reasonable accessible height.
- 4.1.13 The proposed surface water discharge rate has been restricted to 50% of existing flows generated. The surrounding area is currently being redeveloped as part of Manchester's redevelopment programme therefore should all surrounding developments, proposing to discharge surface water flows to the River Irk, restricting flows to 50% or better, this will in turn provide a substantial betterment on existing flows to the river, potentially reducing river levels during extreme storm events.
- 4.1.14 The Environment Agency have been consulted and two meeting were held to discuss the proposals. The second meeting was in response to the first where the revised development proposals were dramatically scaled back to include only business critical requirements. The EA have issued a letter summarising key discussion items and guidance for consideration. Refer to **Appendix E** for correspondence. Items set out in the aforementioned letter have been addressed below.
- 4.1.15 The proposed building has been relocated to avoid creating newly built development over the Moston Brook sub-surface culvert, therefore avoiding potential misalignment with Water Framework Directive objectives, and removing the risk associated with building over sub-structure watercourses.
- 4.1.16 To ensure no increase in adverse flood risk elsewhere the proposed development will not displace flood water, and the proposed levels have been designed to maintain or better existing flood volumes.
- 4.1.17 In relation to the external associated yard, it is proposed to provide a dished area to direct any potential spillages to the drainage system which can be isolated. In addition, good house keeping and on-site procedures will mean that all spills are dealt with immediately and at source. Should a spillage occur, the largest volume would be from an IBC container with a 1000 litres capacity. The external yard area perimeter level is designed at a minimum of 32.2m AOD, with the lowest level central to the yard design at 32.1m AOD. The volume provided within the dished area is 13.73m³ or 13,700 litres therefore any spillage will be contained within the yard area, isolated, appropriately cleaned up and disposed off site. This is not fundamentally different from existing conditions as

there is already a depressed area in the existing yard. Refer to drawing 1-21268-CCL-00-00-DR-C-001 included within **Appendix H**.

- 4.1.18 The proposed yard area will have a c.5m access point for vehicles to the east side of the yard. This will be ramped access and has been designed to allow for flood flows across the site.
- 4.1.19 The EA have raised concerns regarding the previous designed bund restricting the flow path of flood water into the site therefore the bund proposal has been removed and replaced with a dished area, as noted in 4.1.17. The proposed levels have been designed to maintain the flood flow path into the site and the consequential flood volume that exist currently. Cross sections show that the volume of consequential storage and access to the storage is matched to the pre-existing conditions.
- 4.1.20 Spillages should be contained locally and disposed of in accordance with the procedures set out in a agreed drainage maintenance strategy regime.
- 4.1.21 In addition to the dished spillage area provided and maintenance strategy procedures, the below ground drainage system will be fitted with an interceptor to prevent any contaminants accessing the river via the sites drainage network, should rainfall wash any contaminates into the drainage system, prior to the local clean-up operation. A manual shut of valve or similar, is also proposed to be installed to isolate the spillage immediately and reduce the risk of contaminates being washed into the Surface Water system.
- 4.1.22 To the west of the building an access strip will be provided between the proposed structure and the existing boundary wall. The access strip will provide a minimum 3m width, providing access for emergency repairs and maintenance to the river/wall. This will provide a betterment on the existing access arrangements as currently access is limited adjacent to the wall.
- 4.1.23 It is the developer's responsibility as riparian landowner to ensure new buildings do not reduce access to the river. The development proposals improve the access arrangement significantly.
- 4.1.24 The foundations proposed for the west and northern part of the building should be designed not to impact on the existing river wall. It is recommended that an inspection of the riverbank retaining structure is undertaken and any repairs carried out as part of the development proposals. Method statements will be required for the construction stage of the development.

5.0 Drainage Strategy

Surface Water and Sustainable Drainage Systems

5.1.1 Part H of the Building Regulations 2010 recommends that surface water run-off shall discharge to one of the following, listed in order of priority:

- a) an adequate soakaway or some other adequate infiltration system, or where that is not reasonably practicable.
- b) a watercourse, or, where that is not reasonably practicable.
- c) a sewer.

5.1.2 It is necessary to identify the most appropriate method of controlling and discharging surface water. The design should seek to improve the local run-off profile by using systems that can either attenuate run-off and reduce peak flow rates or positively impact on the existing flood profile.

Infiltration Based Systems

5.1.2.1 Ground water levels have been monitored as part of the investigation works and recorded at borehole (BH) 1 (elevation of approx. 32.483m AOD) with water levels of between 2.93m and 2.97m below ground level (BGL) (29.553m AOD and 29.513mAOD). BH2 is at an elevation of 32.199m AOD with water levels of between 2.80m and 2.77m BGL (29.339m AOD and 29.429m AOD). Borehole logs and Location Plan are included within **Appendix G**.

5.1.2.2 Infiltration testing has not been carried out for this site. Infiltration has been considered however deemed not appropriate due to the risk of saturating land behind the river wall, and the implications this could have on the development and the river, should the wall fail.

5.1.2.3 River water level shown on the topographical survey, recorded at 29.704m AOD to the southwestern corner of the site is marginally higher than the ground water levels.

5.1.2.4 When designing an infiltration drainage system, allowing surface water runoff to be collected and discharged into the ground, 1m clearance is required from the base of the drainage system to the water level. The base of drainage system is expected to be c.2.5m BGL when providing sufficient loading cover to the system (CL: 32.2m AOD – 2.5m depth = IL: 29.7m AOD). Meeting the requirement of proving 1m clearance above the ground water level, isn't feasible.

5.1.2.5 With the above in mind, discharging surface water via means of infiltration has been discounted.

Open Watercourses

5.1.3 The site lies adjacent to the River Irk with the Moston Brook sub-surface culvert running underneath the development.

- 5.1.4 The detailed culvert survey shows connectivity from the exiting site surface water facilities to the culvert. The majority of the site drains at low point gullies direct to the culvert.
- 5.1.5 The proposal for discharging surface water flows from the development, is to maintain the current connection point to the culvert however at a restricted rate.
- 5.1.6 Any proposed connection to water courses are subject to approval from the EA.

Sewers

- 5.1.7 There is a 225mm combined sewer runs in a southern direction within Collyhurst Road to the east of the development.
- 5.1.8 There are no public surface water sewers in proximity to the site.

SuDS Option Feasibility

- 5.1.9 Sustainable Urban Drainage Systems (SuDS) are designed to reduce the risk of surface water runoff in an effective manner while offering cost-benefits, reduced maintenance, and increased amenity value.
- 5.1.10 The development proposals could include a small number of landscaped areas to the north-eastern boundary of the commercial courtyard; however, levels are designed to maximise flood storage which generally fall away from this location, therefore would not have much if any benefit.
- 5.1.11 Given the nature of the site, its use and that the external levels are designed to provide flood volume storage, the position of the low-lying areas where you could potentially look to provide green infrastructure, would lie within the main vehicular access routes therefore would not be feasible.
- 5.1.12 Attenuation storage will also be used to restrict the surface water flows before being discharged of site.

Runoff Assessment

- 5.1.13 The existing site area including the external landscaped areas equate to 0.45 hectares in total the existing impermeable area equates to 0.33 hectares which is approximately 73% of the total site, the remaining 27% or 0.12ha is made up of soft landscaping.
- 5.1.14 The proposed development impermeable area in 0.45ha which is 100% of the development site, increasing impermeable areas by 27%.
- 5.1.15 Figure 12 indicates the existing impermeable arrangement and Figure 13 shows the proposed impermeable arrangement.



Figure 12- Existing Impermeable Area

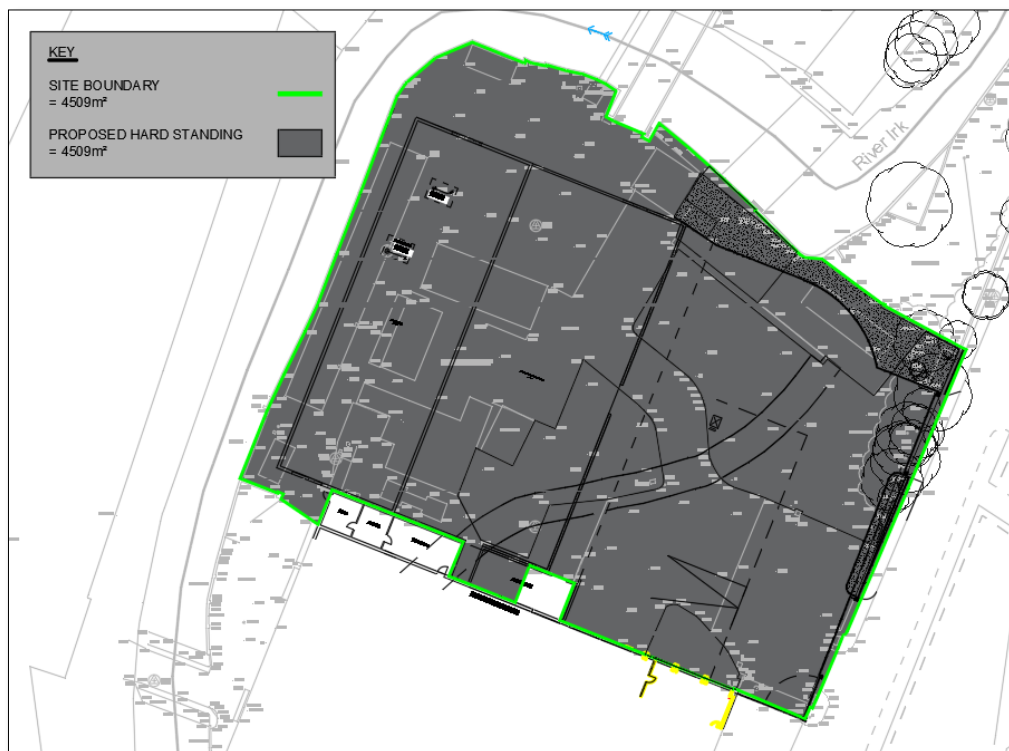


Figure 13 - Proposed Impermeable Area

- 5.1.16 The pre-development runoff from the site for the 1 in 1-year peak flows have been calculated using the Wallingford Modified Rational Method. See figure 14 below:

Wallingford Modified Rational Method									
Q = 2.78 C_v CR I A									
Where:									
CV = Volumetric Runoff Coefficient									
CR = 1.3 (Routing Coefficient)									
I = Rainfall Intensity (mm/h)									
A = Area (ha)									
2.78 = Coefficient accounting for the differences in units used for the inputs and the outputs of the equation.									
The variable C _v is a co-efficient that describes the proportion of rainfall appearing in the surface water drainage system. CR is a routing co-efficient added to the Rational Method to represent runoff characteristics of a particular site or area in a more accurate manner.									
	2.78	x	0.75	x	1.3	x	50	x	0.330 = 44.723 l/s

Figure 14 – Pre-development Flows

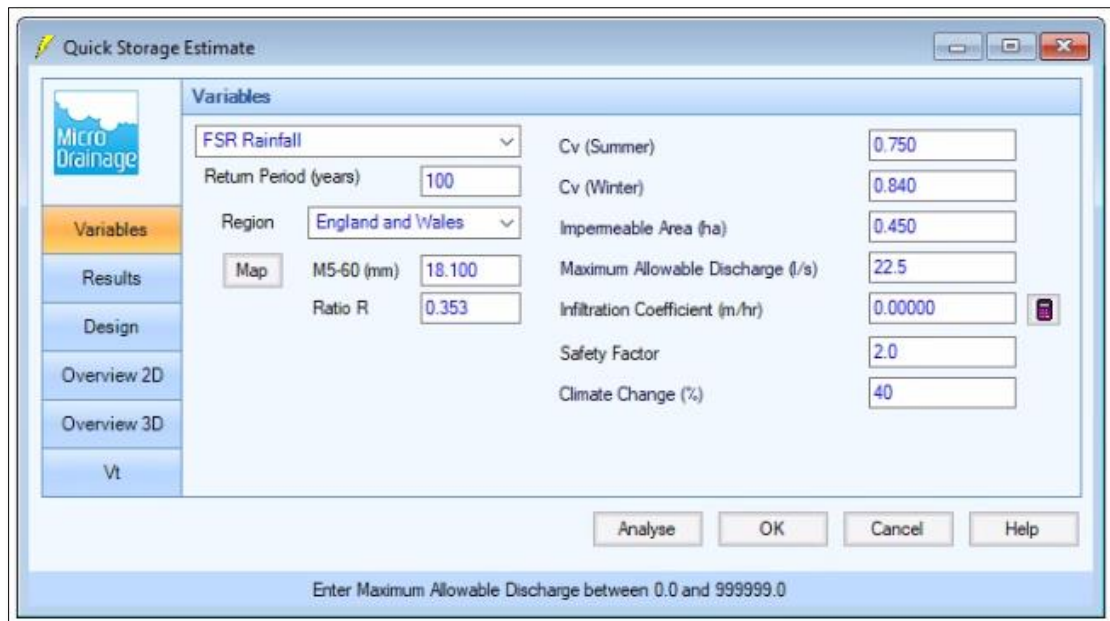
- 5.1.17 Due to the expected very low pre-development discharge rate for the permeable areas (0.12ha), this has been discounted from any calculation.
- 5.1.18 The total pre-development runoff from the site is calculated at 44.723 l/s ~ 45 l/s.

Proposed Discharge Rate

- 5.1.19 In order to provide a betterment for the site, it is proposed that the surface water discharge for the site is limited to 50% of the pre-development 1-year peak runoff rate for all storms up to the 1 in 100 year plus 40% for climate change.
- 5.1.20 In line with Manchester, Salford and Trafford Council Strategic Flood Risk Assessment (SFRA), it is proposed to offer a 50% reduction to the pre-development rates where surface water runoff is discharged to the watercourse. Therefore, the surface water discharge from the site will be restricted to 22.5 l/s which is subject to agreement from the relevant authorities.

Drainage Proposals – Main Strategy & Attenuation Volume

- 5.1.21 Surface water Drainage Strategy is provided in **Appendix I**.
- 5.1.22 The proposed development will comprise on an impermeable footprint of approximately 0.45ha. In order to maintain the discharge rate of 22.5l/s for all storms up to and including the 100-year return period with a 40% allowance for climate change, attenuation is expected to be in the order of 116m³ - 197m³ of surface water storage. This has been calculated using Micro drainage design software, see figure 15 below.



Quick Storage Estimate

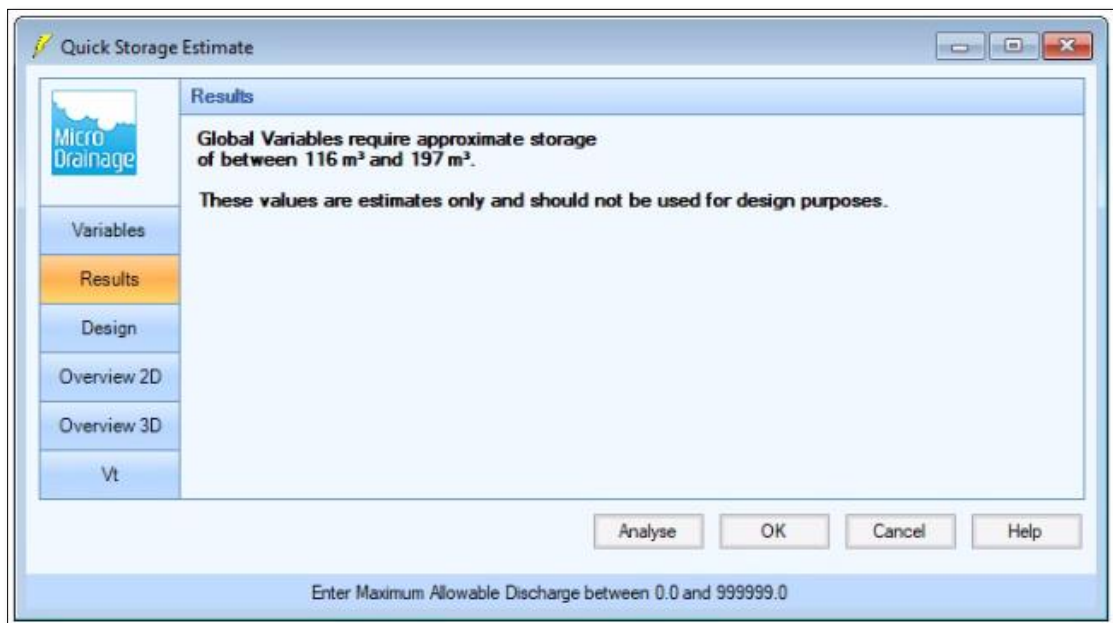
Variables

FSR Rainfall (dropdown)
 Return Period (years): 100
 Region: England and Wales (dropdown)
 Map (button)
 M5-60 (mm): 18.100
 Ratio R: 0.353

Cv (Summer): 0.750
 Cv (Winter): 0.840
 Impermeable Area (ha): 0.450
 Maximum Allowable Discharge (l/s): 22.5
 Infiltration Coefficient (m/hr): 0.00000
 Safety Factor: 2.0
 Climate Change (%): 40

Buttons: Analyse, OK, Cancel, Help

Enter Maximum Allowable Discharge between 0.0 and 999999.0



Quick Storage Estimate

Results

Global Variables require approximate storage of between 116 m³ and 197 m³.
 These values are estimates only and should not be used for design purposes.

Buttons: Analyse, OK, Cancel, Help

Enter Maximum Allowable Discharge between 0.0 and 999999.0

Figure 15 – Quick Storage Estimate

5.1.23 Approval for the proposed surface water discharge rate of **22.5 l/s** is required by the EA and Lead Local Flood Authority.

5.2 Foul Water Drainage

- 5.2.1 The existing foul drainage connects to the combined sewers located in Collyhurst Road via a gravity system.
- 5.2.2 The proposed development requires limited foul drainage therefore new connections and reconfiguration of existing facilities on site may be required. All welfare facilities within the proposed storage facility are to utilise existing foul drainage connections where feasible.
- 5.2.3 It is not expected to require new connections to the public sewer however any new connections will be subject to agreement with UU via a Section 106 (Water Industry Act 1991) application.

6.0 Access, Egress & Evacuation

6.1 Safe Access & Egress

- 6.1.1 The site is fully accessible with level pedestrian and vehicular access routes throughout the site and the main point of access to the storage facility will utilise the existing access off Collyhurst Road.

6.2 Flood Warning & Evacuation

- 6.2.1 Flood risk within the site is in Flood Zone 3 and there was evidence of flooding it is recommended that the prospective site management should contact the Flood Warning Service at <https://flood-warning-information.service.gov.uk/>. The postcode of M40 7RU should be entered. This will confirm any current flood warnings. Additionally, it is possible to register to receive flood warnings at <https://www.gov.uk/sign-up-for-flood-warnings> or by calling Floodline on 0345 988 1188.
- 6.2.2 The site management should also provide warning signs and provide appropriate traffic management to protect all employees from the River Irk.
- 6.2.3 The client is aware of the River Irk flooding risk potential and there is an existing evacuation policy in place for the site. The Flood Warning & Evacuation Plan for the site should be updated to accommodate the proposed development prior to occupation, with this information being made available to any subsequent users.
- 6.2.4 The evacuation point is shown in figure 16 below, marked with a red dot. This location lies within Flood Zone 1.

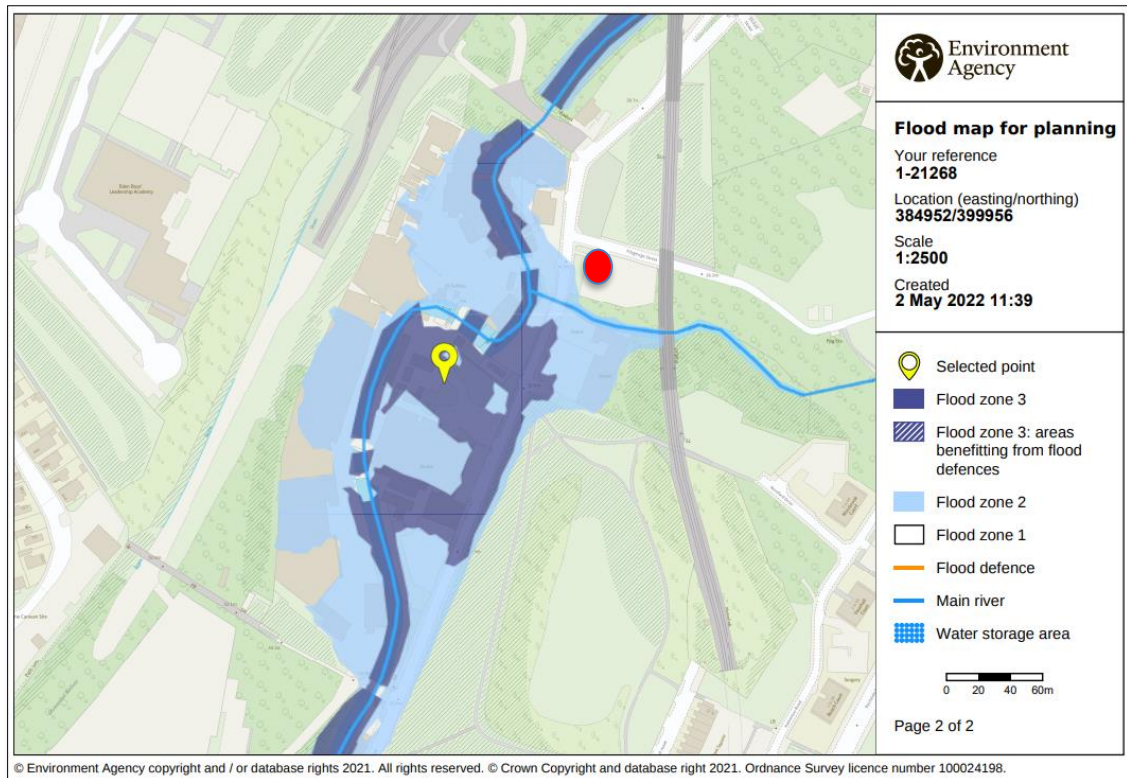


Figure 16 – Evacuation Meeting Point

7.0 Off-Site Impacts

- 7.1.1 The proposed development surface water will discharge at reduced rates via the provision of attenuation. Therefore, the development will bring about improvements to the surface water regime in the area, and hence will not increase flooding adjacent to or downstream of the site for the lifetime of the development.

8.0 Overland Flow & Flood Routing Considerations

- 8.1.1 The current overland flows path and flood exceedance routing is to be maintained for the proposed development.
- 8.1.2 In line with this report, careful attention will need to be paid to the proposed site levels to ensure that overland flow routes are maintained.

9.0 Residual Flood Risk

- 9.1.1 The residual risk of flooding from the River Irk will remain the same due to the existing and proposed levels for the site.

10.0 Recommendations

The following recommendations are made to reduce flood risk and promote a sustainable and practicable drainage strategy for the proposed development:

- The proposed river flood level used to compare flood volumes for the existing and proposed scenario is the 1 in 100 year plus 35% climate change, as requested by the Environment Agency. This level is predicted at 33.16m AOD.
- Proposed ground levels should be designed to maintain or better the existing flood volume. The proposed building is designed to flood with the slab level set at 32.4m AOD to achieve this.
- The proposed surface water drainage system should be designed to accommodate the 1 in 30-year rainfall event without any surface water flooding and should be capable of retaining the 1 in 100-year plus 40% for climate change storm event on site, without flooding.
- The proposed surface water runoff should be limited to 50% of existing flows (22.5 l/s) for all storms up to and including the 100-year return period with a 40% allowance for climate change, attenuation is required which provides in the order of 116-197m³ of surface water storage.
- The proposed building should be allowed to flood incorporating a system to allow flood water to enter and exit the building.
- The proposed building has been relocated to avoid creating newly built development over the Moston Brook sub-surface culvert.
- In relation to the external associated yard, it is proposed to provide a dished area, to account for any potential spillages. This will restrict any spillages off site and reduce the risk of contaminants entering the river.
- Any spills that occur, should be contained locally and disposed of as part of the operation response.
- Full retention interceptors should be installed as part of the Surface Water drainage system.
- Existing overland flow paths that occur due to river flooding should be maintained.
- To the west of the building an access strip will be provided between the proposed structure and the existing boundary wall. The access strip will provide a minimum 3m width, providing access for emergency repairs and maintenance to the river/wall. This represents a significant improvement on existing conditions.
- It is recommended that an inspection of the riverbank retaining structure is undertaken and any repairs carried out as part of the development proposals.
- The foundations proposed for the west and northern part of the building should be designed not to impact on the existing river wall.
- The site management should register to receive flood warnings.
- The Flood Warning & Evacuation Plan for the site should be updated to accommodate the proposed development prior to occupation, with this information being made available to any subsequent users.
- We recommend electrical points to be set minimum 1.2m above slab level (33.6m AOD), this provides 440mm freeboard above the +35% river flood level.
- The type of attenuation tank used is to be considered, to aid maintenance following extreme flood events and to reduce the risk of silt and debris build up.

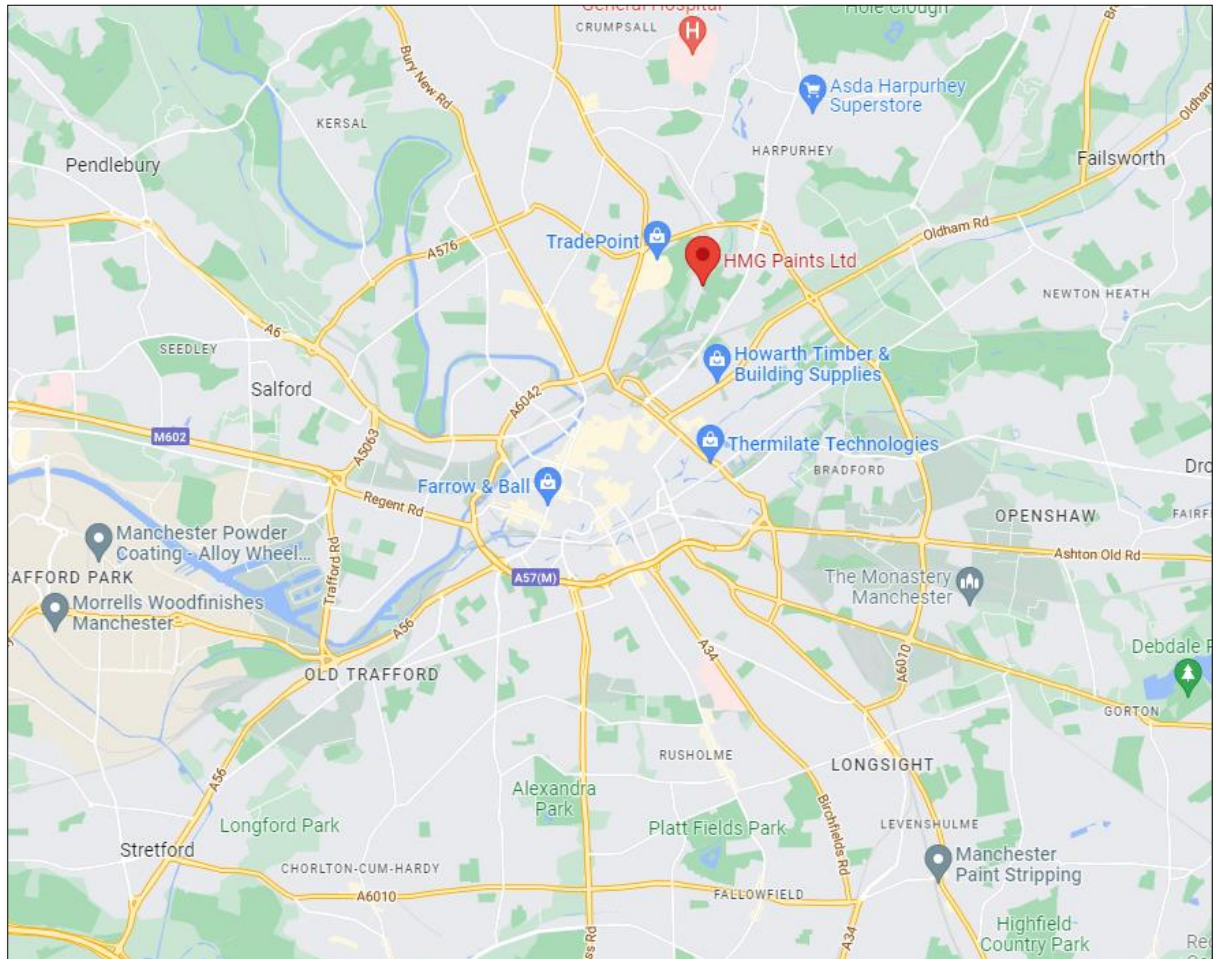
Appendix A - Site Location Plan

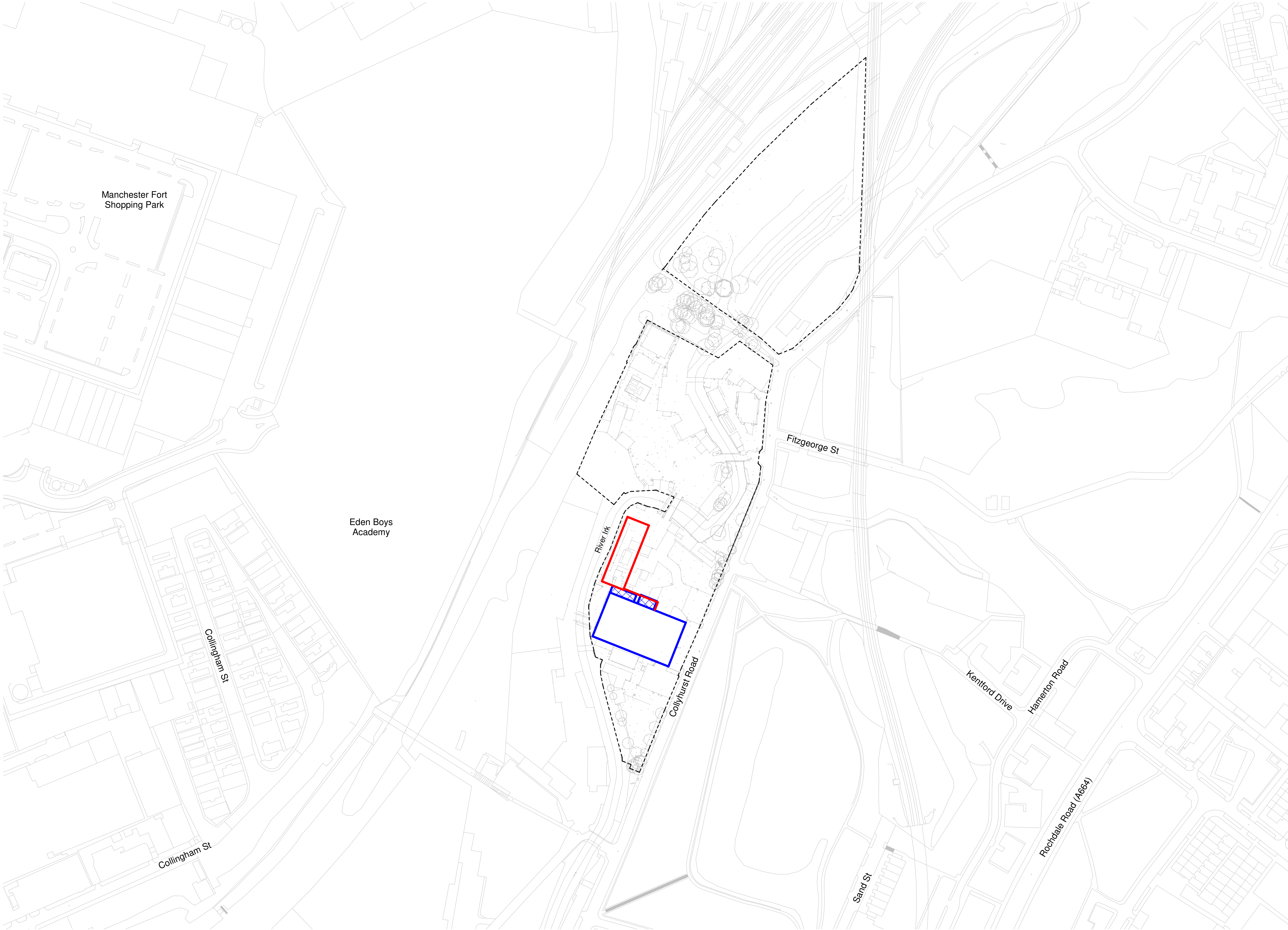
Site Location Plan

Address:

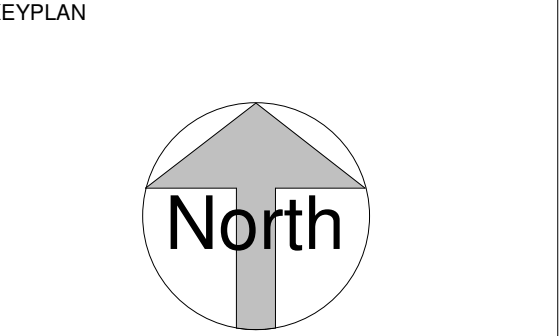
HMG Paints Ltd, Collyhurst Rd, Cheetham Hill, Manchester M40 7RU.

Site location identified by the red marker.





Notes
The Contractor is to check all dimensions and conditions on site before commencing. Do not scale from this drawing.
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Scale Bars TO BE USED ONLY AS GUIDANCE
1:100 mm 1000 5000
1:200 mm 5000 8000
1:500 M 5 15 25
1:1250 M 10 30 50 70



- Key**
- Proposed Site Development Area
 - Existing Building
 - Existing Builds attached to warehouse, cladding to be replaced to unify buildings.
 - HMG Site Boundary

Rev	Description	By	Date
Project Status		Drawing Status	
Stage 2		S4	
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Client / Project
HMG Paints

Project Crystal

Drawing
Site Location Plan

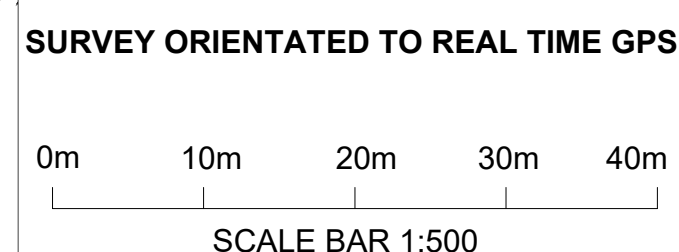
Date	30/06/2022	As indicated	@ A1
Drawn By	MCA	AS	IRC

Manchester:
55 King Street
+44 (0)161 831 7300
Southampton:
Minor Park
Minstead
Southampton SO43 7FY
+44 (0)23 8081 7900
Cambridge:
CB1 Business Centre
20 Station Road
Cambridge CB1 2JD
+44 (0)1223 863 868
www.fairhursts.com

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7703-FDG-DR-XX-00-A-08000		

Appendix B – Topographical Survey



ONLY MANHOLES AND SERVICES VISIBLE AT
TIME OF SURVEY SHOWN

ONLY MANHOLES AND SERVICES VISIBLE AT TIME OF SURVEY SHOWN

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED WITH LOCAL AUTHORITY RECORDS PRIOR TO WORK COMMENCING

Levels defining edge of carriageway are observed at channel (bottom of kerb). Unless otherwise stated.

REVISIONS

REV.	DESCRIPTION	SURVEYED	DRAWN	DATE

Topographical Survey Legend

[illegible]

BENCH MARK INFORMATION

All levels relate to OSBM Newlyn
Datum Generated by VRS GPS

SURVEY DATA			
STN1	3848604.014	398887.671	32 42.40
STN1A	384932.8	398881.123	31.98 28
STN1B	384932.8	398881.123	31.98 28
STN1C	384932.8	398881.123	31.98 28
STN1D	384932.8	398881.123	31.98 28
STN1E	384932.8	398881.123	31.98 28
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STN1H	384932.8	398881.123	31.98 28
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STN1J	384932.8	398881.123	31.98 28
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STN1Z	384932.8	398881.123	31.98 28
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STN2D	384933.1	399883.467	32 28.08
STN2E	384933.1	399883.467	32 28.08
STN2F	384933.1	399883.467	32 28.08
STN2G	384933.1	399883.467	32 28.08
STN2H	384933.1	399883.467	32 28.08
STN2I	384933.1	399883.467	32 28.08
STN2J	384933.1	399883.467	32 28.08
STN2K	384933.1	399883.467	32 28.08
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STN2M	384933.1	399883.467	32 28.08
STN2N	384933.1	399883.467	32 28.08
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STN2P	384933.1	399883.467	32 28.08
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STN3D	384933.4	400885.716	33 28.08
STN3E	384933.4	400885.716	33 28.08
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STN3G	384933.4	400885.716	33 28.08
STN3H	384933.4	400885.716	33 28.08
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STN3Q	384933.4	400885.716	33 28.08
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STN3T	384933.4	400885.716	33 28.08
STN3U	384933.4	400885.716	33 28.08
STN3V	384933.4	400885.716	33 28.08
STN3W	384933.4	400885.716	33 28.08
STN3X	384933.4	400885.716	33 28.08
STN3Y	384933.4	400885.716	33 28.08
STN3Z	384933.4	400885.716	33 28.08
STN4	384933.7	401887.964	34 28.08
STN4A	384933.7	401887.964	34 28.08
STN4B	384933.7	401887.964	34 28.08
STN4C	384933.7	401887.964	34 28.08
STN4D	384933.7	401887.964	34 28.08
STN4E	384933.7	401887.964	34 28.08
STN4F	384933.7	401887.964	34 28.08
STN4G	384933.7	401887.964	34 28.08
STN4H	384933.7	401887.964	34 28.08
STN4I	384933.7	401887.964	34 28.08
STN4J	384933.7	401887.964	34 28.08
STN4K	384933.7	401887.964	34 28.08
STN4L	384933.7	401887.964	34 28.08
STN4M	384933.7	401887.964	34 28.08
STN4N	384933.7	401887.964	34 28.08
STN4O	384933.7	401887.964	34 28.08
STN4P	384933.7	401887.964	34 28.08
STN4Q	384933.7	401887.964	34 28.08
STN4R	384933.7	401887.964	34 28.08
STN4S	384933.7	401887.964	34 28.08
STN4T	384933.7	401887.964	34 28.08
STN4U	384933.7	401887.964	34 28.08
STN4V	384933.7	401887.964	34 28.08
STN4W	384933.7	401887.964	34 28.08
STN4X	384933.7	401887.964	34 28.08
STN4Y	384933.7	401887.964	34 28.08
STN4Z	384933.7	401887.964	34 28.08
STN5	384934.0	402889.214	35 28.08
STN5A	384934.0	402889.214	35 28.08
STN5B	384934.0	402889.214	35 28.08
STN5C	384934.0	402889.214	35 28.08
STN5D	384934.0	402889.214	35 28.08
STN5E	384934.0	402889.214	35 28.08
STN5F	384934.0	402889.214	35 28.08
STN5G	384934.0	402889.214	35 28.08
STN5H	384934.0	402889.214	35 28.08
STN5I	384934.0	402889.214	35 28.08
STN5J	384934.0	402889.214	35 28.08
STN5K	384934.0	402889.214	35 28.08
STN5L	384934.0	402889.214	35 28.08
STN5M	384934.0	402889.214	35 28.08
STN5N	384934.0	402889.214	35 28.08
STN5O	384934.0	402889.214	35 28.08
STN5P	384934.0	402889.214	35 28.08
STN5Q	384934.0	402889.214	35 28.08
STN5R	384934.0	402889.214	35 28.08
STN5S	384934.0	402889.214	35 28.08
STN5T	384934.0	402889.214	35 28.08
STN5U	384934.0	402889.214	35 28.08
STN5V	384934.0	402889.214	35 28.08
STN5W	384934.0	402889.214	35 28.08
STN5X	384934.0	402889.214	35 28.08
STN5Y	384934.0	402889.214	35 28.08
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STN6A	384934.3	403890.464	36 28.08
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STN6C	384934.3	403890.464	36 28.08
STN6D	384934.3	403890.464	36 28.08
STN6E	384934.3	403890.464	36 28.08
STN6F	384934.3	403890.464	36 28.08
STN6G	384934.3	403890.464	36 28.08
STN6H	384934.3	403890.464	36 28.08
STN6I	384934.3	403890.464	36 28.08
STN6J	384934.3	403890.464	36 28.08
STN6K	384934.3	403890.464	36 28.08
STN6L	384934.3	403890.464	36 28.08
STN6M	384934.3	403890.464	36 28.08
STN6N	384934.3	403890.464	36 28.08
STN6O	384934.3	403890.464	36 28.08
STN6P	384934.3	403890.464	36 28.08
STN6Q	384934.3	403890.464	36 28.08
STN6R	384934.3	403890.464	36 28.08
STN6S	384934.3	403890.464	36 28.08
STN6T	384934.3	403890.464	36 28.08
STN6U	384934.3	403890.464	36 28.08
STN6V	384934.3	403890.464	36 28.08
STN6W	384934.3	403890.464	36 28.08
STN6X	384934.3	403890.464	36 28.08
STN6Y	384934.3	403890.464	36 28.08
STN6Z	384934.3	403890.464	36 28.08
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STN7B	384934.6	404891.714	37 28.08
STN7C	384934.6	404891.714	37 28.08
STN7D	384934.6	404891.714	37 28.08
STN7E	384934.6	404891.714	37 28.08
STN7F	384934.6	404891.714	37 28.08
STN7G	384934.6	404891.714	37 28.08
STN7H	384934.6	404891.714	37 28.08
STN7I	384934.6	404891.714	37 28.08
STN7J	384934.6	404891.714	37 28.08
STN7K	384934.6	404891.714	37 28.08
STN7L	384934.6	404891.714	37 28.08
STN7M	384934.6	404891.714	37 28.08
STN7N	384934.6	404891.714	37 28.08
STN7O	384934.6	404891.714	37 28.08
STN7P	384934.6	404891.714	37 28.08
STN7Q	384934.6	404891.714	37 28.08
STN7R	384934.6	404891.714	37 28.08
STN7S	384934.6	404891.714	37 28.08
STN7T	384934.6	404891.714	37 28.08
STN7U	384934.6	404891.714	37 28.08
STN7V	384934.6	404891.714	37 28.08
STN7W	384934.6	404891.714	37 28.08
STN7X	384934.6	404891.714	37 28.08
STN7Y	384934.6	404891.714	37 28.08
STN7Z	384934.6	404891.714	37 28.08
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STN8A	384934.9	405892.964	38 28.08
STN8B	384934.9	405892.964	38 28.08
STN8C	384934.9	405892.964	38 28.08
STN8D	384934.9	405892.964	38 28.08
STN8E	384934.9	405892.964	38 28.08
STN8F	384934.9	405892.964	38 28.08
STN8G	384934.9	405892.964	38 28.08
STN8H	384934.9	405892.964	38 28.08
STN8I	384934.9	405892.964	38 28.08
STN8J	384934.9	405892.964	38 28.08
STN8K	384934.9	405892.964	38 28.08
STN8L	384934.9	405892.964	38 28.08
STN8M	384934.9	405892.964	38 28.08
STN8N	384934.9	405892.964	38 28.08
STN8O	384934.9	405892.964	38 28.08
STN8P	384934.9	405892.964	38 28.08
STN8Q	384934.9	405892.964	38 28.08
STN8R	384934.9	405892.964	38 28.08
STN8S	384934.9	405892.964	38 28.08
STN8T	384934.9	405892.964	38 28.08
STN8U	384934.9	405892.964	38 28.08
STN8V	384934.9	405892.964	38 28.08
STN8W	384934.9	405892.964	38 28.08
STN8X	384934.9	405892.964	38 28.08
STN8Y	384934.9	405892.964	38 28.08
STN8Z	384934.9	405892.964	38 28.08
STN9	384935.2	406894.214	39 28.08
STN9A	384935.2	406894.214	39 28.08
STN9B	384935.2	406894.214	39 28.08
STN9C	384935.2	406894.214	39 28.08
STN9D	384935.2	406894.214	39 28.08
STN9E	384935.2	406894.214	39 28.08
STN9F	384935.2	406894.214	39 28.08
STN9G	384935.2	406894.214	39 28.08
STN9H	384935.2	406894.214	39 28.08
STN9I	384935.2	406894.214	39 28.08
STN9J	384935.2	406894.214	39 28.08
STN9K	384935.2	406894.214	39 28.08
STN9L	384935.2	406894.214	39 28.08
STN			

..\\..\\Marketing\\Logos and font\\Title block.jpg

PROJECT
HMG Paints
Collyhurst Road
Manchester

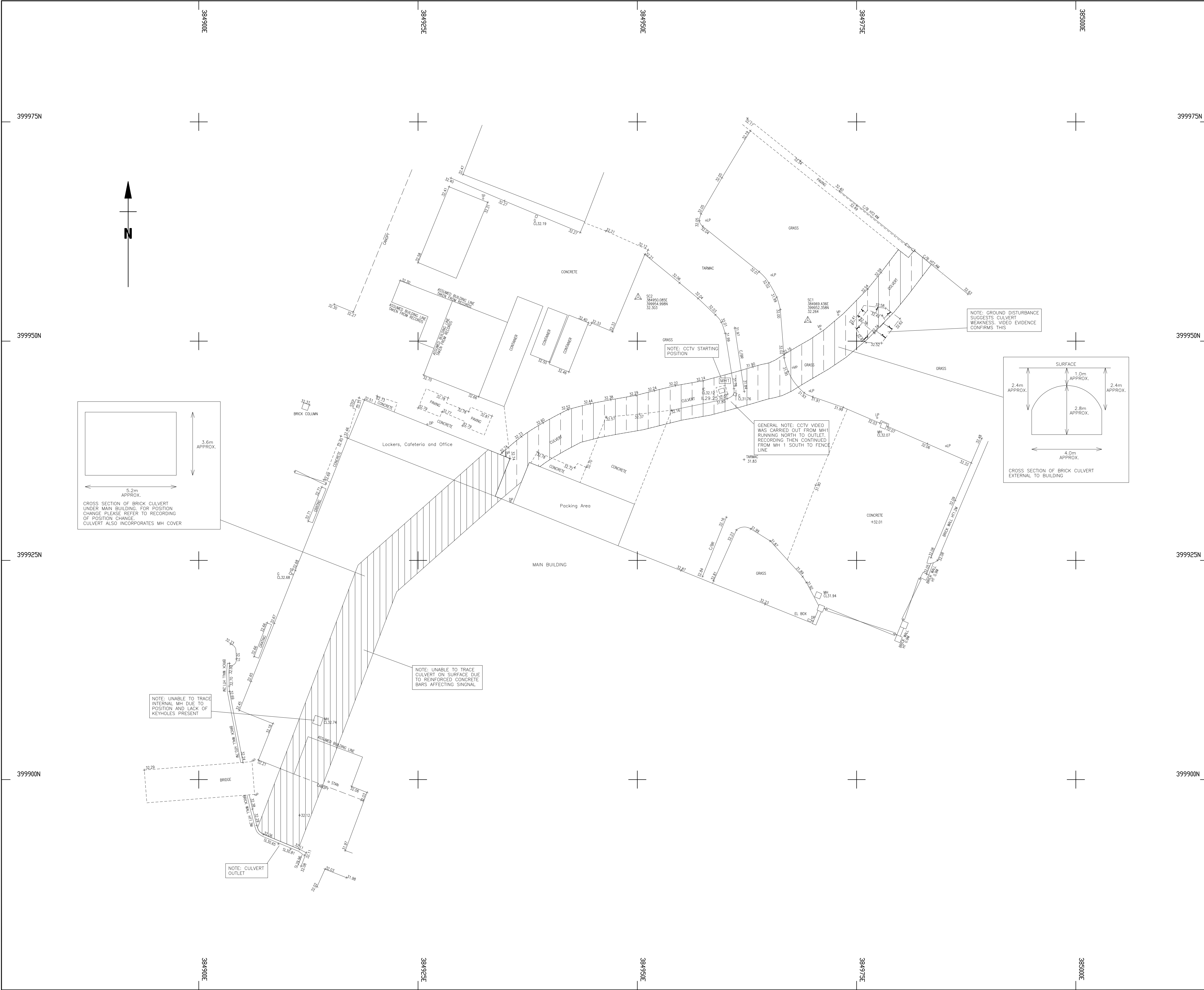
DRAWING TITLE

Topographical Land Survey

SCALE	SHEET SIZE	No. of SHEETS	DATE	REVISION
1:500	A0	1	25.02.2020	

DRAWING NUMBER
PCS.19-019 (TOP)44

Appendix C – Culvert Survey



Survey Notes

Grid: Local, Plane, Metric, Related to National Grid at SC1.

Levels: OS Datum from GNSS positioning converted using the National Geoid Model OSGM15

Notes

Topographical Survey Legend

BUILDINGS AND WALLS	GENERAL INFORMATION
Building	Petrol Pump
Open Sided	Basement Light
Ruin	Footbridge
Passage	Dish Type Channel
Wat with Height	Slit Type Channel
Retaining Wall	Grate Type Channel
	Tactile Paving
	Column
	Stanchion
	Car Vacuum
	Drill Pit
	Air Valve
	Trough
	Chimney
	Telephone Call Box

FENCE STYLES AND DESCRIPTIONS
Close Boarded
Corrugated Iron
Chainlink
Hendrol
Interweave
Iron Railings
Lattice
Miscellaneous
Post & Chain
Post & Rail
Post & Wire
Post & Barbed Wire
Wire mesh
Wire
Gate
Fence Inset

ROADS
Kerbs
Edge of Surfacing
Pedestrian Crossing
Track
Footpath

STREET FURNITURE
Belted Beacon
Bus Stop
Ballard
Cable Eye
Cool Chute
Closed Circuit TV
Drain
Electricity Pole
Flood Light
Flag Staff
Lamp Post
Letter Box
Name Plate (street)
Moorings Ring
Mile Post or Mooring Post
Service Marker
Post
Parking Meter
Reflector Post
Road Sign
Speed Camera
Information Sign
Stop
Traffic Light
Telegraph Pole
Traffic Light Push Button Post
Traffic Light Control
Control Box
British Telecom Box
Electricity Box
Gas Box

INSPECTION CHAMBERS AND PIPES
Inspection Cover (Elec)
Inspection Cover (Comm)
Inspection Cover (Comm)
Cable TV
Inspection Cover Traffic Signals
Gully
Manhole
Vent Pipe
Down Pipe
Ran Water Pipe
Soil Pipe
Gas Pipe
Unable to lift cover
Stop Valve
Lampole
Hydrant
Earth Rod
Gas Valve
Water Meter
Washout
Road Sign

LEVEL AND HEIGHT INFORMATION
Standard Spot Height
Precision Spot Height
Bed Level
Water Level
Saffit Level
Threshold Level
Cover Level
Invert Level
Pipe Saffit Level
Finished Floor Level
Top of Tank Level
Eave Level
Ridge Level
Roof Hip Level
Flat Roof Level
Top of Canopy Level
Underline of Canopy Level
Window Sill Level
Window Head Level
Springing Level
Arch Level
Cable Level
Top of Wall Level
Underline of Beam Level
General Height

SURVEY INFORMATION SIGNS
Permanent Ground Marker
O.S. Trig Station
O.S. Bench Mark

GEOTECHNICAL INFORMATION
Borehole
Test Pit
Monitor Pin
Probe Hole
Window Sample

Rev. Date Description

Client

TEAM DRAINAGE UK

2nd FLOOR, PEEL HOUSE, PEEL ROAD

PIMBO IND. ESTATE, SKELMERSDALE WN8 9PT

Project

HMG PAINTS LTD RIVERSIDE WORKS

COLLYHURST ROAD, COLLYHURST

MANCHESTER M40 7RU

Drawing Title

TOPOGRAPHICAL SURVEY

Drawn By IC 26/04/2021

Checked by ED 27/04/2021

Drawing No 57100/1

Survey Date April 2021

Scale A1@1:200

Revision

Accreditations

MALCOLM HUGHES CHARTERED LAND SURVEYORS

65 Cross Street, Sale Manchester M33 7HF Tel: 0161 905 1265 www.malcolmhughes.co.uk survey@mhhs.co.uk

HEAD OFFICE Peel House, 2nd Floor Peel Road, Pimbo, Skelmersdale, WN8 9PT 0161 905 768 714

RICS THE SURVEY ASSOCIATION

Project

Project Name: HMG PAINTS
Project Description: WinCan Import in Miraculix WRc4 Standard
Project Date: 21/04/2021



Project Information

Project Name
HMG PAINTS**Project Number****Project Date**
21/04/2021

Client

Company: HMG Paints Ltd
Description: Paint Factory
Contact: Ashley Wallen
Department: Site Contact
Street: Collyhurst Road
Town or City: Manchester
County: Greater Manchester
Post Code: M40 7RU
Phone: 0161 205 7631
Email: awallen@hmgpaints.com

Site

Company: HMG Paints Ltd
Description: Paint Factory
Contact: Ashley Wallen
Department: Site Contact
Street: Collyhurst Road
Town or City: Manchester
County: Greater Manchester
Post Code: M40 7RU
Phone: 0161 205 7631
Email: awallen@hmgpaints.com

Contractor

Company: Team Drainage UK Ltd
Description: Contractor
Contact: Ben Pearce
Department: Operations
Street: 2nd Floor Peel House Peel Road
Town or City: Skelmersdale
County: Lancashire
Post Code: WN8 9PT
Phone: 01695 768 714
Mobile: 07530 029 367
Email: ben.pearce@teamdrainageuk.com



Section Inspection - 21/04/2021 - A/P 1X

Section 1	Inspection 1	Date 21/04/21	Time 10:12	Client's Job Ref 01	Weather No Rain Or Snow	Pre Cleaned No	PLR A/P 1X
Operator L ROBERTS		Vehicle Not Specified		Camera Not Specified	Preset Length Not Specified	Legal Status Not Specified	Alternative ID 1

Town or Village:	Manchester	Inspection Direction:	Downstream	Upstream Node:	A/P 1
Road:	Collyhurst Road	Inspected Length:	73.48 m	Upstream Pipe Depth:	2.870 m
Location:	Property with buildings	Total Length:	73.48 m	Downstream Node:	OUTFALL
Surface Type:		Joint Length:	0.00 m	Downstream Pipe Depth:	
Use:	Surface water	Pipe Shape:	Arched (with flat bottom)		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	1,800 mm	Width:	4,000 mm
Year Constructed:		Pipe Material:	Brick		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:	Sample survey to determine asset condition	Lining Material:	No Lining		

Comments:

Recommendations:

Scale: 1:558	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: 2.87 m A/P 1	0.00	MH	Start node type, manhole, reference number: A/P 1	00:00:03	1_0-02m_111310.jpg	
	0.00	WL	Water level, 20% of the vertical dimension	00:00:05		
	7.04	DER	Settled deposits, coarse, 15% cross-sectional area loss	00:00:52	1_7-04m_111421.jpg	3
	16.05	LL	Line deviates left	00:02:06	1_16-05m_111540.jpg	
	22.53	MB	Missing bricks from 9 o'clock to 10 o'clock	00:02:49	1_22-53m_111641.jpg	4
	30.00	SC	Size changes, new size(s), 3600mm high, 5200mm wide	00:00:03		
	30.00	MCCO	Material changes to concrete: brick walls concrete roof	00:02:06		
	30.78	DER	Settled deposits, coarse, 20% cross-sectional area loss	00:03:47	1_30-78m_111827.jpg	3
	48.36	MB	Missing bricks from 3 o'clock to 4 o'clock	00:06:04	1_48-36m_112216.jpg	4
	59.74	REM	General remark: ACCESS POINT	00:07:13	1_59-74m_112337.jpg	
	61.00	SC	Size changes, new size(s), 1800mm high, 4000mm wide	00:08:39		
	61.00	MCBR	Material changes to brick	00:08:39		
	62.90	MB	Missing bricks from 12 o'clock to 1 o'clock	00:08:20	1_62-90m_112454.jpg	4
	64.04	CN	Connection other than junction at 2 o'clock, diameter: 225mm: CAPPED OFF	00:08:39		
	64.05	CN	Connection other than junction at 11 o'clock, diameter: 150mm	00:08:51	1_64-05m_112701.jpg	



TEAM
DRAINAGE UK

Team Drainage UK Ltd

2nd Floor Peel House Peel Road, Skelmersdale

Tel. 01695 768 714

ben.pearce@teamdrainageuk.com

Section Inspection - 21/04/2021 - A/P 1X

Section 1	Inspection 1	Date 21/04/21	Time 10:12	Client's Job Ref 01	Weather No Rain Or Snow	Pre Cleaned No	PLR A/P 1X
Operator L ROBERTS		Vehicle Not Specified		Camera Not Specified	Preset Length Not Specified	Legal Status Not Specified	Alternative ID 1

Scale: 1:



Position [m]

64.11

73.48

OUTFALL

Depth: m

Code

CN

OFF

Observation

Connection other than junction at 9 o'clock, diameter: 300mm

Finish node type, outfall, reference number: OUTFALL

MPEG

00:09:21

00:10:12

Photo

1_64-11m_112843.jpg

1_73-48m_112943.jpg

Grade

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	120.0	4.9	360.0	4.0	2	2.0	0.1	4.0	3.0

Section Pictures - 21/04/2021 - A/P 1X

Section 1	Inspection Direction Downstream	PLR A/P 1X	Client's Job Ref 01	Contractor's Job Ref
--------------	------------------------------------	---------------	------------------------	----------------------



1_0-02m_111310.jpg, 00:00:03, 0.00 m
 Start node type, manhole, reference number: A/P 1



1_7-04m_111421.jpg, 00:00:52, 7.04 m
 Settled deposits, coarse, 15% cross-sectional area loss



1_16-05m_111540.jpg, 00:02:06, 16.05 m
 Line deviates left



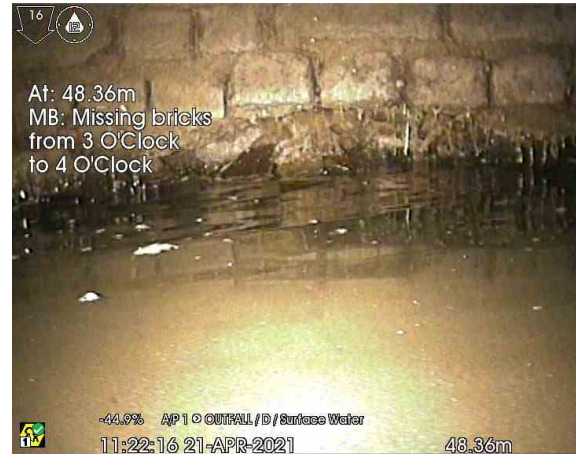
1_22-53m_111641.jpg, 00:02:49, 22.53 m
 Missing bricks from 9 o'clock to 10 o'clock

Section Pictures - 21/04/2021 - A/P 1X

Section 1	Inspection Direction Downstream	PLR A/P 1X	Client's Job Ref 01	Contractor's Job Ref
--------------	------------------------------------	---------------	------------------------	----------------------



1_30-78m_111827.jpg, 00:03:47, 30.78 m
 Settled deposits, coarse, 20% cross-sectional area loss



1_48-36m_112216.jpg, 00:06:04, 48.36 m
 Missing bricks from 3 o'clock to 4 o'clock



1_59-74m_112337.jpg, 00:07:13, 59.74 m
 General remark, ACCESS POINT



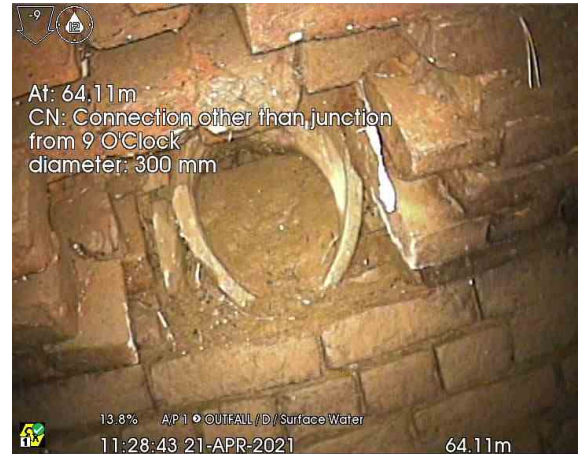
1_62-90m_112454.jpg, 00:08:20, 62.90 m
 Missing bricks from 12 o'clock to 1 o'clock

Section Pictures - 21/04/2021 - A/P 1X

Section 1	Inspection Direction Downstream	PLR A/P 1X	Client's Job Ref 01	Contractor's Job Ref
--------------	------------------------------------	---------------	------------------------	----------------------



1_64-05m_112701.jpg, 00:08:51, 64.05 m
 Connection other than junction at 11 o'clock, diameter: 150mm



1_64-11m_112843.jpg, 00:09:21, 64.11 m
 Connection other than junction at 9 o'clock, diameter: 300mm



1_73-48m_112943.jpg, 00:10:12, 73.48 m
 Finish node type, outfall, reference number: OUTFALL



TEAM
DRAINAGE UK

Team Drainage UK Ltd

2nd Floor Peel House Peel Road, Skelmersdale

Tel. 01695 768 714

ben.pearce@teamdrainageuk.com

Section Inspection - 21/04/2021 - INFALLX

Section 2	Inspection 2	Date 21/04/21	Time 11:30	Client's Job Ref 01	Weather No Rain Or Snow	Pre Cleaned No	PLR INFALLX
Operator L ROBERTS		Vehicle Not Specified		Camera Not Specified	Preset Length Not Specified	Legal Status Not Specified	Alternative ID 1

Town or Village:	Manchester	Inspection Direction:	Upstream	Upstream Node:	INFALL
Road:	Collyhurst Road	Inspected Length:	37.27 m	Upstream Pipe Depth:	
Location:	Property with buildings	Total Length:	37.27 m	Downstream Node:	A/P 1
Surface Type:		Joint Length:	0.00 m	Downstream Pipe Depth:	2.870 m
Use:	Surface water	Pipe Shape:	Arched (with flat bottom)		
Type of Pipe:	Gravity drain/sewer	Dia/Height:	1,800 mm	Width:	4,000 mm
Year Constructed:		Pipe Material:	Brick		
Flow Control:	No flow control	Lining Type:	No Lining		
Inspection Purpose:	Sample survey to determine asset condition	Lining Material:	No Lining		

Comments:

Recommendations:

Scale: 1:325	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: A/P 1	00:00:01	2_0-00m_113724.jpg	
	0.00	WL	Water level, 20% of the vertical dimension	00:00:04		
	2.88	MB	Missing bricks from 12 o'clock to 1 o'clock	00:00:40	2_2-88m_113823.jpg	4
	3.44	MB	Missing bricks from 9 o'clock to 10 o'clock	00:00:53	2_3-44m_113851.jpg	4
	6.26	MB	Missing bricks from 12 o'clock to 1 o'clock	00:01:35		4
	6.50	CN	Connection other than junction at 12 o'clock, diameter: 150mm	00:02:18	2_6-50m_114043.jpg	
	6.50	LL	Line deviates left	00:02:26	2_6-50m_114056.jpg	
	6.60	CN	Connection other than junction at 3 o'clock, diameter: 300mm	00:04:21	2_6-60m_114302.jpg	
	8.89	DER	Settled deposits, coarse, 20% cross-sectional area loss	00:04:42	2_8-89m_114337.jpg	3
	29.87	CN	Connection other than junction at 2 o'clock, diameter: 150mm	00:06:07	2_29-87m_114511.jpg	
	29.87	CN	Connection other than junction at 12 o'clock, diameter: 150mm	00:07:01	2_29-87m_114616.jpg	
	37.27	SA	Survey abandoned: OUT OF SURVEY BOUNDRY	00:09:34	2_37-27m_114921.jpg	

Construction Features

Structural Defects

Miscellaneous Features

Service & Operational Observations

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
3	120.0	9.7	360.0	4.0	1	2.0	0.1	2.0	3.0

Section Pictures - 21/04/2021 - INFALLX

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
2	Upstream	INFALLX	01	



2_0-00m_113724.jpg, 00:00:01, 0.00 m
 Start node type, manhole, reference number: A/P 1



2_2-88m_113823.jpg, 00:00:40, 2.88 m
 Missing bricks from 12 o'clock to 1 o'clock



2_3-44m_113851.jpg, 00:00:53, 3.44 m
 Missing bricks from 9 o'clock to 10 o'clock



2_6-50m_114043.jpg, 00:02:18, 6.50 m
 Connection other than junction at 12 o'clock, diameter: 150mm

Section Pictures - 21/04/2021 - INFALLX

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
2	Upstream	INFALLX	01	



2_6-50m_114056.jpg, 00:02:26, 6.50 m
 Line deviates left



2_6-60m_114302.jpg, 00:04:21, 6.60 m
 Connection other than junction at 3 o'clock, diameter: 300mm



2_8-89m_114337.jpg, 00:04:42, 8.89 m
 Settled deposits, coarse, 20% cross-sectional area loss



2_29-87m_114511.jpg, 00:06:07, 29.87 m
 Connection other than junction at 2 o'clock, diameter: 150mm

Section Pictures - 21/04/2021 - INFALLX

Section	Inspection Direction	PLR	Client's Job Ref	Contractor's Job Ref
2	Upstream	INFALLX	01	



2_29-87m_114616.jpg, 00:07:01, 29.87 m
 Connection other than junction at 12 o'clock, diameter: 150mm



2_37-27m_114921.jpg, 00:09:34, 37.27 m
 Survey abandoned, OUT OF SURVEY BOUNDRY



**TEAM
DRAINAGE**

Team Drainage Ltd Manhole Survey Card

Card No		Map No	
Catchment		MH No	A/P 1 - ACCESS POINT 1
Location	ON GRASS VERGE NEAR WAREHOUSE		
Town	COLLYHURST		

★ WC	Status		Syphon	★ S	Function	★ MH	MH Type	21 4 21	Date of Survey
---------	--------	--	--------	--------	----------	---------	---------	---------	----------------

COVER DETAILS

☐ Square
 ☒ Rectangle
 ☐ Triangle
 ☐ Dbl Triangle
 ☐ Circular
 ☐ Oval
 ☐ Other
 ☐ Multiple
 ☐ Hinged
 ☐ Lockable

Cover Level m
 H / M / L Cover Duty ☒ L
 Initials LR

PIPE DETAILS

Incoming Pipes

Clockwise from pipe X	Pipe	Depth from Invert (m)	Upstream / Downstream MH Ref	Shape	Size (mm)		Pipe Mat	Lining Mat	Back Drop Dia (mm)	Back Drop Depth (m)
	A	2.86	INFALL	A	1800	X	4000	BRICK		
	B	0.30		C	100	X		PVC		
	C					X				
	D					X				
	E					X				
	F					X				

Outgoing Pipes

X	2.87	OUTFALL	A	1800	X	400	BRICK			
Y					X					

Cover Opening at narrowest	420.00	mm	Chamber Size at widest	4000.00	mm	Evidence of Surcharge	
Shaft at narrowest	460.00	mm	Shaft Depth (from CL)	1100.00	mm	OX / H2S / METH Toxic atmosphere	

MANHOLE CONSTRUCTION DETAILS

☐ Pre Cast Concrete
 ☐ In Situ Concrete
 ☒ Brick
 ☐ GRP
 ☐ Arch
 ☐ Corbel
 ☐ Taper
 ☐ Side Entry

☐ Reducing Slab
 ☐ Segments
 ☐ No. of Landings
 0 No. of Step Irons
 0 No. of Ladders

☐ No. of Regulating Brick Courses

CONDITION INFORMATION (specific in remark)

	Cover	Shaft	Irons / Ladders	Chamber	Benching	Channel
OK	☒	☒	☐	☒	☐	☐
Needs attention	☐	☐	☐	☐	☐	☐
Urgent attention	☐	☐	☐	☐	☐	☐
Depth of Flow		mm	Depth of Silt		mm	Height of Surcharge from CL

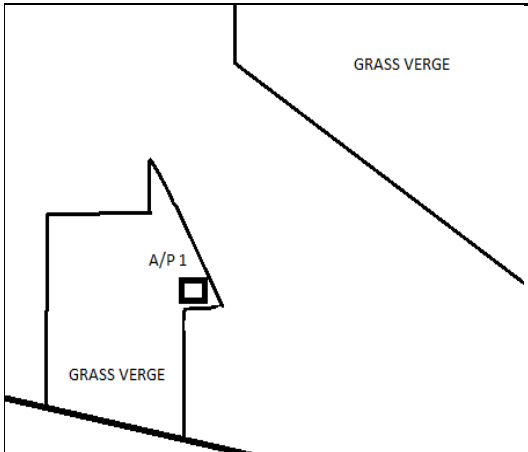
REMARKS

NO STEPS OR LADDER. NO BENCHING OR CHANNEL.

★ See Overleaf for Key

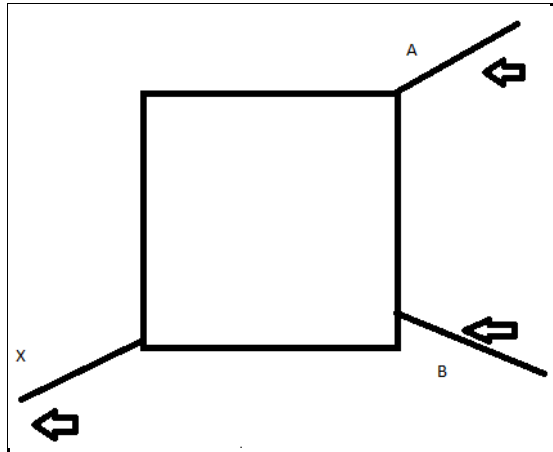
LOCATION SKETCH

N



PLAN OF MANHOLE

N



LOCATION PHOTO

N



PHOTO OF MANHOLE

N



STATUS

PU : Public
24 : Section 24

PR : Private
HD : Highway Drain

WC : Culverted Watercourse

} Applies to main outlet

FUNCTION

F : Foul

C : Combined

S : Surface Water

} Applies to main outlet

MANHOLE TYPE

IF : Infall
LH : Lamphole
GU : Gully

MH : Manhole
RE : Rodding Eye
OF : Outfall

CP : Catchpit
SO : Storm Overflow
SA : Soakaway

CSO : Consented Sewer Overflow
DS : Dual system Manhole
PS : Pumping Station

COVER DUTY

L : Light Duty

M : Medium Duty

H : Heavy Duty

SHAPE

C : Circular
S : Square
B : Barrel
X : Other (state in words)

E : Egg
T : Trapezoidal
H : Horseshoe (Inverted U)

R : Rectangular
A : Arched
U : U-shaped with flat top

PIPE (OR LINING)
MATERIAL

AK : Alkathene
CI : Cast Iron
CSB : Concrete Segments (Bolted)
DI : Ductile Iron
PSC : Plastic/Steel Composite
RPM : Reinforced Plastic Matrix
PP : Polypropylene
MAF : Masonry, Random Courses

AC : Asbestos Cement
SI : Spun (Grey) Iron
CSU : Concrete Segments (Unbolted)
GRC : Glass Reinforced Concrete
PVC : Polyvinyl Chloride
ST : Steel
PF : Pitch Fibre
XXX : Other (State in remarks)

BR : Brick
CO : Concrete
CC : Concrete Box Culvert
GRP : Glass Reinforced Plastic
PE : Polyethylene
VC : Vitrified Clay
MAC : Masonry, Coursed

LINING

BL : Bitumen
CL : Cement

RL : Resin
PI : Plastic

IS : Insituform

Appendix D – Environment Agency Flood Data

Flood map for planning

Your reference
1-21268

Location (easting/northing)
384952/399956

Created
2 May 2022 11:39

Your selected location is in flood zone 3, an area with a high probability of flooding.

This means:

- you must complete a flood risk assessment for development in this area
- you should follow the Environment Agency's standing advice for carrying out a flood risk assessment (see www.gov.uk/guidance/flood-risk-assessment-standing-advice)

Notes

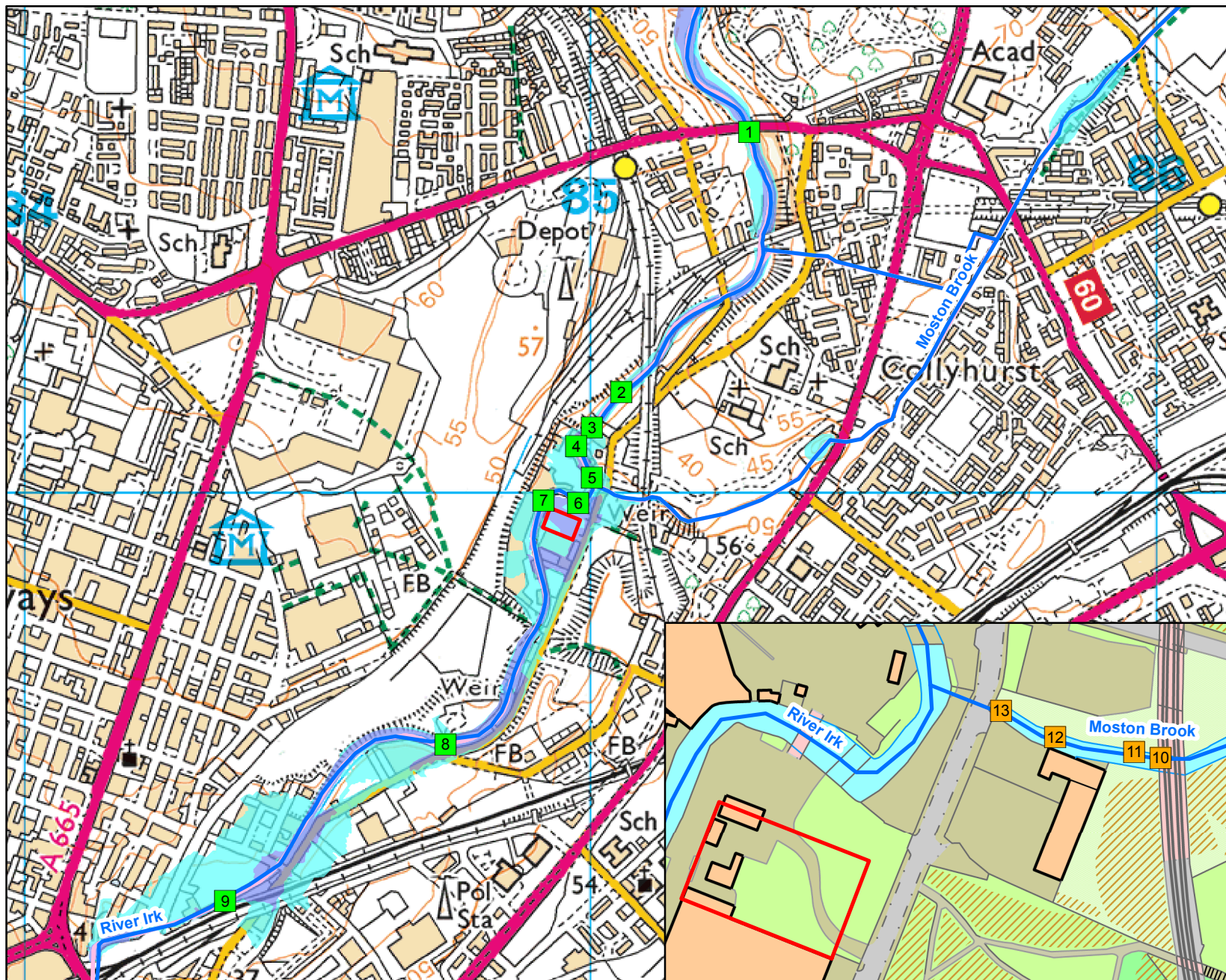
The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2021 OS 100024198. <https://flood-map-for-planning.service.gov.uk/os-terms>

Detailed Flood Map centred on Collyhurst Road, Cheetham Hill, Manchester, M40 7RU.
Created on 17/11/2021 [GMMC233160AB]



1:10,001



Legend

- Site Location
- River Irk
- Irk, Moston and Whit Brook
- Main River
- Flood Zone 3
- Flood Zone 2

Recorded Flood Outline Map centred on Collyhurst Road, Cheetham Hill, Manchester, M40 7RU.

Created on 17/09/2021 [GMMC233160AB]



1:10,001



Legend

Site Location

Main River

Recorded Flood Outlines

Start Date

16/03/2019

Map Reference	Model Node Reference	Easting	Northing	Data	Undefended			
					4 % AEP (1 in 25 year)	1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year) + 20% increase in flow	0.1 % AEP (1 in 1000 year)
1	ea013_Model_Irk_00001	385282	400638	Modelled Water Level (m aodN)	36.91	37.20	37.44	38.82
				Modelled Flow (cumecs)	47.30	58.06	65.76	105.48
2	ea013_Model_Irk_00010	385200	400330	Modelled Water Level (m aodN)	34.67	35.04	35.28	36.40
				Modelled Flow (cumecs)	47.35	58.02	65.80	104.48
3	ea013_Model_Irk_00014	385004	400115	Modelled Water Level (m aodN)	33.00	33.25	33.46	34.97
				Modelled Flow (cumecs)	47.51	58.11	65.95	105.35
4	ea013_Model_Irk_00015	384977	400082	Modelled Water Level (m aodN)	32.94	33.16	33.31	34.05
				Modelled Flow (cumecs)	47.51	58.12	66.14	105.47
5	ea013_Model_Irk_00042	385005	400027	Modelled Water Level (m aodN)	32.62	32.75	32.85	33.79
				Modelled Flow (cumecs)	47.51	58.11	65.94	82.01
6	ea013_Model_Irk_00017	384981	399981	Modelled Water Level (m aodN)	32.58	32.75	32.95	33.91
				Modelled Flow (cumecs)	47.32	55.10	57.40	53.22
7	ea013_Model_Irk_00019	384919	399987	Modelled Water Level (m aodN)	31.88	32.21	32.77	33.96
				Modelled Flow (cumecs)	47.36	56.85	58.55	53.09
8	ea013_Model_Irk_00027	384745	399555	Modelled Water Level (m aodN)	30.47	30.95	31.22	31.91
				Modelled Flow (cumecs)	55.25	64.94	71.86	90.18
9	ea013_Model_Irk_00033	384356	399278	Modelled Water Level (m aodN)	28.79	29.10	29.32	30.21
				Modelled Flow (cumecs)	55.63	65.43	72.49	101.64

Model data taken from River Irk SFRA 2011 Study

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes: Climate Change Scenario - We only hold climate change measurements based on the previous climate change guidance (20% increase in flow). The new climate change guidance is available at <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>. The location of the site and the type (vulnerability) of development determine the climate change allowances to consider in any flood risk assessment.

Map Reference	Model Node Reference	Easting	Northing	Data	Defended	Undefended	
					1 % AEP (1 in 100 year)	1 % AEP (1 in 100 year)	0.1 % AEP (1 in 1000 year)
10	ea01313_MOST01_0240	385087	399989	Modelled Water Level (m aodN)	33.70	33.69	36.19
				Modelled Flow (cumecs)	14.06	14.07	28.20
11	ea01313_MOST01_0230	385077	399991	Modelled Water Level (m aodN)	33.70	33.69	36.19
				Modelled Flow (cumecs)	14.05	14.06	28.18
12	ea01313_MOST01_0200	385049	399996	Modelled Water Level (m aodN)	33.68	33.67	36.19
				Modelled Flow (cumecs)	14.01	14.03	28.18
13	ea01313_MOST01_0177J	385030	400005	Modelled Water Level (m aodN)	33.67	33.66	36.15
				Modelled Flow (cumecs)	14.00	14.01	28.17

Model data taken from Irk, Moston and Whit Brook 2007 Study

AEP - Annual Exceedence Probability

m aodN - metres above ordnance datum Newlyn

cumecs - cubic metres per second

Notes: Climate Change Scenario - We do not hold climate change measurements at this location. For further guidance on climate change within the GMMC area please see the attachment 'Flood risk assessments: Climate change allowances'. Particularly section 3, table B which shows the Local precautionary allowances for potential climate change impacts.

Flood Event Code	Name	Start Date	End Date	Source of Flooding	Cause of Flooding
69510	Collyhurst Road	16/03/2019	16/03/2019	Main River	channel capacity exceeded (no raised defences)

Manchester City Council
Development Control
PO Box 488
Manchester
Lancashire
M60 2JT

Our ref: SO/2022/122390/01-L01
Your ref: 134523/FO/2022
Date: 08 September 2022

FAO: Steven McCoombe

Dear Steven,

ERECTION OF A SIDE EXTENSION TO PROVIDE ADDITIONAL STORAGE AND ANCILLARY FLOORSPEACE IN ASSOCIATION WITH THE EXISTING USE (CLASS B8), TOGETHER WITH ELEVATIONAL ALTERATIONS TO THE EXISTING BUILDING AND ALTERATIONS TO THE SITE ACCESS TO THE SERVICE YARD

**RIVERSIDE WORKS, H MARCEL GUEST LTD, COLLYHURST ROAD
MANCHESTER, M40 7RU**

Thank you for consulting the Environment Agency on the above development proposal. Initial referral for this application was received on the 5th August 2022.

Environment Agency Position – Holding Objection - 134523/FO/2022

As submitted, we are unable to recommend to the Local Planning Authority (LPA) approval of the proposed development.

Having undertaken review of current submissions, we advise, in accordance with the guidance of paragraph 167 of the National Planning Policy Framework (NPPF) that insufficient evidence has currently been provided to demonstrate that associated fluvial flood risk can be appropriately managed and therefore no adverse risk is posed (off-site).

In line with above, we advise that prior to approval, further clarification is required from the applicant/agent as to how intended flood plain storage and the bunding interacting with this will impact upon anticipated flood flows in a range of flood flow events.

Further explanation as to our reasoning for current holding objection is provided in the subsequent letter section below.

If you are minded to approve this application for major development contrary to our flood risk objection, we request that you contact us to allow further discussion and/or representations from us in line with the Town and Country Planning (Consultation) (England) Direction 2021.

This statutory instrument prevents you from issuing planning permission without first referring the application to the Secretary of State for Housing, Communities and Local Government (via the National Planning Casework Unit) to give them the opportunity to call-in the application for their own determination. This process must be followed unless we are able to withdraw our objection to you in writing. A failure to follow this statutory process could render any decision unlawful, and the resultant permission vulnerable to

Environment Agency
Richard Fairclough House Knutsford Road, Warrington, WA4 1HT.
Customer services line: 03708 506 506
www.gov.uk/environment-agency

Cont/d..

legal challenge.

Reason For Objection – Insufficient Clarity Regarding Management of Flood risk

To inform our position statement above, our Flood Risk Team has undertaken a review of the following current relevant submission(s) in relation to the matter associated with the management of of fluvial flood risk:

- Flood Risk Assessment and Drainage Strategy. HMG Paints Ltd. Prepared by Clancy Consulting. Report Ref: 1-21268-FRA-001. Rev. 02. Dated: 13/07/2022.

As referred to within the Flood Risk Assessment (FRA), the Environment Agency has undertaken pre-application discussions with the applicant's engineers in relation to flood risk.

We note the principle of the proposed development is a water-entry based design to maintain sufficient flood plain storage volume within the site. Whilst an approach which favors improved avoidance of areas at risk of flooding or flood resilience measures (e.g. raised finished floor levels) is advisable. We acknowledge given the primary intended use of the site and spatial constraints the reasoning for progressing the proposed development design.

We have no objections, in principle to this design. However, before the application is application further clarification is required in relation to the external bunded storage yard area and its associated impact on flood plain storage.

Section 4.1.18 of the FRA refers to the bund being ramped at the access point and that it "has been designed to allow for flood flows across the site". It is not clear from the current FRA/submissions how a raised bund of 200mm over a significant spatial extent would maintain flood flows and flood plain storage in the early stages of a flood occurring.

The plans/sections in Appendix H of the FRA show contours in relation to maintaining flood volumes and existing/proposed levels. The bund is likely to impact on this as the site starts to flood although we note the 1%AEP CC flood level would overtop this.

The bund appears to be shown on the sections to be situated at around a 32.5m level except for within Section 2 which is through the ramped access point.

To address our objection we would request from the applicant/agent and their chosen consultant provided clarification/evidence on how the bunded area is anticipated to impact flood flows (in a range of events) and, in turn, how sufficient flood storage is achieved. We acknowledge this may require the submission of a new/updated FRA.

We ask that we are re-consulted on the submission of an updated FRA and/or on any further documentation which interacts with the EA's planning remit and environmental focus.

Note to Applicant / Agent – Flood Risk Planning Practice Guidance Update

We note that the contents of the current FRA (1-21268-FRA-001) prepared makes references/linkage in several areas to [national flood risk planning practice guidance](#). In association with this we advise that the flood risk planning practice guidance, available here, was updated on the 25 August 2022 and has resulted in variation to paragraph

and table number. As part of any subsequent update to the current FRA (if intended approach), we advise that any relevant reference noted within this are updated to accord with the latest guidance.

Note to LPA – Sequential Test

We note under section 3.2 of the FRA (1-21268-FRA-001) that reference is made to applicant of the flood risk Sequential Test.

In accordance with paragraph 167 of the NPPF development in flood risk areas should not be permitted if there are reasonably available alternative sites, appropriate for the proposed development, in areas with a lower risk of flooding. The Sequential Test establishes if this is the case

It is for you, as the local planning authority, to decide whether the sequential test has been satisfied, but the applicant should demonstrate to you, with evidence, what area of search has been used. Further guidance on the area of search can be found in the planning practice guidance [here](#).

In relation to our role in application of the test, we (the EA) can advise on the relative flood risk between the proposed site and any alternative sites identified - although published flood mapping should enable the reviewer to do this in most instances. We won't advise on whether alternative sites are reasonably available or whether they would be suitable for the proposed development

We also won't advise on whether there are sustainable development objectives that mean steering the development to any alternative sites would be inappropriate. Further guidance on how to apply the sequential test to site specific applications can be found in the planning practice guidance [here](#).

Note to Applicant / Agent – Surface Water Drainage to Moston Brook Sub-Surface Culvert

We note from the contents of the current FRA (1-21268-FRA-001 Appendix I) , the intention to drain site surface water to an outfall within the Moston Brook sub-surface culvert. We acknowledge that surface water is intended to be treated via interceptor prior to drainage and the utilisation of infiltration drainage technologies has been discounted due to the results of ground investigations undertaken. However, it currently unclear from the details of Appendix I whether all surface water directed to the attenuation will appropriately treated prior to discharge.

In light of the above, whilst we have no objection, in principle, to surface water being connect to Moston Brook sub-surface culvert. We advise it must be ensure that appropriate pollution prevention measures are implemented to ensure the suitability of any subsequent discharge made into the sub-surface culvert.

In accordance with the Environmental Permitting (England and Wales) Regulations 2016, an environmental permit maybe be required if there is an intention to discharge water which cannot meet the classification of an uncontaminated discharge.

For further advice and guidance on this topic, please refer to the following gov.uk page: [Discharges to surface water and groundwater: environmental permits - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits)

Note to Applicant/Agent – Environment Agency Chargeable Planning Advice Service

Further to the contents of this letter, we recognise the development project team may wish to seek further technical site-specific advice and guidance from the Environment Agency.

As previously, we may do this as part of our [chargeable planning advice service](#). If utilisation of this service is desired, then please don't hesitate to contact me (details below) to discuss the most appropriate forward approach.

--

Please forward a copy of this letter to the applicant / agent. Should you have any queries or questions regarding this response, then please don't hesitate to get in contact.

Yours sincerely,

Mr Andy Davies
Green Growth Team Project Manager

Direct e-mail andy.davies1@environment-agency.gov.uk

Clancy Consulting
Dunham Court (2) Dunham Road
Altrincham
Cheshire
WA14 4NX

Our ref: SO/2021/121679/02-L01
Your ref: 131476/FO/2021
Date: 17 March 2022

FAO: Paul Fleming / Clancy Consulting

Dear Mr Fleming

ENVPAC/1/GMC/00385: HMG PAINTS REVISED DEVELOPMENT LAYOUT / FLOOD RISK REQUIREMENTS DISCUSSION (ASSOCIATED WITH PLANNING APPLICATION 131476/FO/2021)

VIRTUAL MEETING (11:00-12:00 08/03/2022)- EA / CLANCY CONSULTING LTD -

PROPOSED ERECTION OF ADDITIONAL STORAGE AREA EXTENSION (ca. 730 sqm) TO EXISTING HMG PAINTS DESPATCH WAREHOUSE AND CREATION OF ASSOCIATED OUTDOOR BUNDED AREA (ca. 978 sqm)

RIVERSIDE WORKS, COLLYHURST ROAD, MANCHESTER, M40 7RU

Thank you again for meeting virtually with the Environment Agency (EA) on the 8th March 2022 to discuss the revised development proposal outlined above.

As follow-on from this, please find detailed below our written summary of key discussion items arising and supplementary/ additional post-meeting guidance for consideration by your project team.

Please be advised to facilitate our meeting and provide this written response we have utilised 5 hours of extended chargeable planning agreement ENVPAC/1/GMC/00385 (3 hours remaining).

Associated Drawing Received:

- GA Ground Floor Plan - HMG Paints: Project Crystal –. Drawing Ref: 7703-FDG-DR-XX-GF-A-11101. Prepared by Fairhurst Design Group. Date 11/05/2022.

EA – HMG Paints Extension Revised Development Meeting Summary Note

Meeting Attendees:

EA Attendees	Role
Andy Davies (AD)	Planning Advisor / Project Manager
John Ruckledge (JR)	Flood Risk Officer
Sharon Holden (SH)	Flood Risk Officer
Ben Owen (BO)	Flood Risk Officer (Training)
External Attendees	Organisation
Paul Fleming (PF)	Clancy Consulting
Naveera Fasahat (NF)	Clancy Consulting
Ian Chapman (IC)	Fairhursts

Environment Agency
Richard Fairclough House Knutsford Road, Warrington, WA4 1HT.
Customer services line: 03708 506 506
www.gov.uk/environment-agency

Cont/d..

Steve Crossman (SC)	HMG Paints
Ashley Wallen	HMG Paints

Meeting Purpose

As introduction to discussions, it was confirmed that intention of the meeting was to enable the HMG project team to seek an initial preliminary opinion and commentary from the EA on the potential progression of a revised development proposal for extension of existing HMG Paints Site (NGR: SJ8495699948).

Revised Development Proposal – EA Understanding

N.B - As outlined by PF to the EA with additional input from HMG paints project team where required.

The revised development proposal / extension, if progressed, would represent a notable revision in development quantum when compared against the previous proposal reviewed and discussed with the EA (as under 131476/FO/2021 and EA letter SO/2021/121679/02-L01).

In terms of purpose and site constraints, it was noted that intend end-use(Class B8 – Storage or Distribution) and general location (site area) of the revised development would remain as previously presented - situated adjacent to the River Irk and within land designated as Flood Zone 3. The revised development proposal therefore remains at risk of flooding and requiring of a site-specific Flood Risk Assessment (FRA). However, comparable to the previous design, the revision would avoid creating newly built development over the Moston Brook sub-surface culvert (thus avoiding potential misalignment with Water Framework Directive objectives and removing the risks associated with building over sub-surface watercourses).

In terms of flood volumes, factoring the requirements of paragraph 167 of the National Planning Policy Framework (NPPF), to ensure no increase in adverse flood risk elsewhere (providing compensatory storage for any flood volume lost), further to the creation of external storage areas it was noted that that the intention for the revised proposal would be to allow during higher flow/ level flood event (e.g. 1-100 year period) the internal volume of built-development to be inundated (with finished floors remaining the same or in similar alignment with the existing/ adjoining HMG Paints building).

To address the matter of flood water inundation, it was advised that as part of wider flood mitigation measures, that any contents stored within the warehouse would be situated on raised storage racking, above the design flood level and fixed to the foundations of the warehouse. It was further confirmed no items within the warehouse would be stored at ground level, with open voids beneath the racking being maintained.

In relation to the external associated work yard, as shown within 7703-FDG-DR-XX-GF-A-11101, it was noted to account for potential spillages that this would include a bunded area. The height of this bund was not confirmed but it was estimated to likely be approximately 300mm in height (although a lesser height may be possible).

In relation to the proximity of the revised development to the River Irk (adjacent to western site boundary), it was noted that there was no current intention to alter the existent boundary wall situated on the (although this wall would be surveyed to determine if repairs are required). It is anticipated that an access strip (of ca.3-4 meters width) will be provisioned for.

Revised Development Proposal – EA Preliminary Opinion Summary

In connection with our initial understanding revised proposal as detailed above, in principle, we welcome the consideration being made by the project team to revise the HMG extension proposal. We anticipate that this latest revision of development's positioning and quantum will have associated with it lesser risks to several environmental aspects/factors most notably flood risk (with a reduced development footprint and avoidance of building over Moston Brook's sub-surface culvert).

However, as identified during discussions and correspondence associated with the previous development proposal / design, for matters within EA remit, there remains several environmental constraints and risks which will require appropriate and sufficient assessment and design considerations should the revised proposal be further progressed. For ease of reference, these are ensuring that flood risk can be appropriately managed (NPPF paragraph 167), ensuring that the proposed development will not result in adverse impact upon the natural environment (NPPF paragraph 174) and ensuring that new development suitably addresses any unacceptable level of pollution remediating where appropriate.

Revised Development Proposal – EA Additional Post-Meeting Flood Risk Officer Commentary

The current plan submitted to the EA (7703-FDG-DR-XX-GF-A-11101) does not clearly show proximity to the existing river channel wall, as part of meeting discussions we discussed the principle of its location and importance of ensuring access the river in the future (for emergency / maintenance) is provisioned for and where possible enhanced.

We recognise the ability and availability to access the existing river from development proposal area is currently limited, although we note the proposed warehouse location (is situated within an open yard area which could be considered to be providing good access to the river.

Any additional buildings (the revised development proposal) must ensure access to inspect and potentially repair the riverbanks is provisioned. As riparian landowner, it is in your client's interest to ensure new buildings would not prevent future access for repair if necessary.

As part of meeting discussions, it was suggested that 3 metre clear width from building to bank top would be the minimum width provisioned as part of the revised proposal proposals. In response, we would advise that a width of 3 metres width, whilst welcomed, could prove prohibitive to use of larger vehicles or machinery. Consequently, if possible, we suggest you maximise the width of this access. We will be able to advise on acceptability from a flood risk viewpoint subject to seeing cross sections showing existing and proposed levels through the bank.

In terms of flood risk, we note the proposals outlined to allow a water entry strategy in relation to dealing with flood events rather than raising ground levels leading to potential water displacement. However, the reference to proposed perimeter bund will need to be clarified in relation the position and potential impact on flood flows across the site.

Any proposed walls or bunds would have potential to redirect or displace flood water and your FRA/plans will need to be clear on the position and potential impact of these features. The FRA must also outline flood resilience measures for the building

construction to mitigate flood damages and enable recovery after any flood.

Where water entry strategy is proposed, the FRA must show how occupants/users of the development would be “safe”. A flood warning and evacuation plan is likely to be required and we suggest an outline of this is provided for within the FRA.

We note your proposed approach to piled foundations for the building but would also recommend an inspection of the riverbank retaining structures as part of the proposals. Any repairs required should be undertaken as part of the proposed development before the available access is reduced.

--

Additional General Informatives Relevant to Development

Flood Risk - Flood Risk Activity Permit

The Environmental Permitting (England and Wales) Regulations 2016 require a permit or exemption to be obtained for any activities which will take place:

- on or within 8 metres of a main river (16 metres if tidal)
- on or within 8 metres of a flood defence structure or culverted main river (16 metres if tidal)
- on or within 16 metres of a sea defence
- involving quarrying or excavation within 16 metres of any main river, flood defence (including a remote defence) or culvert
- in a floodplain more than 8 metres from the river bank, culvert or flood defence structure (16 metres if it's a tidal main river) and you don't already have planning permission

For further guidance please visit <https://www.gov.uk/guidance/flood-risk-activities-environmental-permits>

The grant of planning permissions does not necessitate the grant of an environmental permit or vice versa.

Flood Risk - Flood Resilience Measures

We strongly recommend the use of flood resistance and resilience measures. Physical barriers, raised electrical fittings and special construction materials are just some of the ways you can help reduce flood damage.

To find out which measures will be effective for this development, please contact your building control department. If you'd like to find out more about reducing flood damage, visit the Flood Risk and Coastal Change pages of the planning practice guidance. Further guidance on flood resistance and resilience measures can also be found in:

Government guidance on flood resilient construction

<https://www.gov.uk/government/publications/flood-resilient-construction-of-new-buildings>

CIRIA Code of Practice for property flood resilience

https://www.ciria.org/Research/Projects_underway2/Code_of_Practice_and_guidance_for_property_flood_resilience.aspx

British Standard 85500 – Flood resistant and resilient construction

Further guidance on preparing properties for flooding can be found at <https://www.gov.uk/government/publications/prepare-your-property-for-flooding>.

Flood Risk - Sequential Test

In accordance with the National Planning Policy Framework (paragraph 162), development in flood risk areas should not be permitted if there are reasonably available alternative sites, appropriate for the proposed development, in areas with a lower risk of flooding. The sequential test establishes if this is the case. Development is in a flood risk area if it is in Flood Zone 2 or 3, or it is within Flood Zone 1 and your strategic flood risk assessment shows it to be at future flood risk or at risk from other sources of flooding such as surface water or groundwater.

The only developments exempt from the sequential test in flood risk areas are:

- Householder developments such as residential extensions, conservatories or loft conversions
- Small non-residential extensions with a footprint of less than 250sqm
- Changes of use (except changes of use to a caravan, camping or chalet site, or to a mobile home or park home site)
- Applications for development on sites allocated in the development plan through the sequential test, which are consistent with the use for which the site was allocated.

Avoiding flood risk through the sequential test is the most effective way of addressing flood risk because it places the least reliance on measures such as flood defences, flood warnings and property level resilience.

It is for the local planning authority, to decide whether the sequential test has been satisfied, but it is for the applicant to demonstrate, with evidence, what area of search has been used. Further guidance on the area of search can be found in the planning practice guidance [here](#).

Sustainable Urban Drainage Systems

Surface water run-off should be controlled as near to its source as possible through a sustainable drainage approach to surface water management (SuDS). SuDS manage surface water run-off by simulating natural drainage systems. Whereas traditional drainage approaches pipe water off-site as quickly as possible, SuDS retain water on or near to the site. As well as reducing flood risk, this promotes groundwater recharge, helps absorb diffuse pollutants, and improves water quality. Ponds, reedbeds and seasonally flooded grasslands can also be particularly attractive features within public open spaces.

SuDS involve a range of techniques including soakaways, infiltration trenches, permeable pavements, grassed swales, green roofs, ponds and wetlands. As such, virtually any development should be able to include a scheme based around these principles. In doing so, they'll provide multiple benefits and will reduce costs and maintenance needs.

Support for the use of SuDS to ensure development does not increase flood risk elsewhere is set out in paragraph 167 of the National Planning Policy Framework.

The Government's expectation is that sustainable drainage systems (SuDS) will be provided in new developments wherever this is appropriate. The Environment Agency supports this expectation. Where infiltration SuDS are to be used for surface run-off from roads, car parking and public or amenity areas, they should:

- be suitably designed
- meet Government's non-statutory technical standards for sustainable drainage systems – these standards should be used in conjunction with the National Planning Policy Framework and Planning Practice Guidance
- use a SuDS management treatment train – that is, use drainage components in series to achieve a robust surface water management system that does not pose an unacceptable risk of pollution to groundwater.

Approved Document Part H of the Building Regulations 2010 establishes a hierarchy for surface water disposal and encourages a SuDS approach. The first option for surface water disposal should be the use of SuDS, which encourage infiltration such as soakaways or infiltration trenches. In all cases, it should be established that these options are feasible, can be adopted and properly maintained and would not lead to any other environmental problems. For example, using soakaways or other infiltration methods on contaminated land carries groundwater pollution risks and may not work in areas with a high-water table. Where the intention is to dispose to soakaway, these should be shown to work through an appropriate assessment carried out under Building Research Establishment (BRE) Digest 365.

Trade Effluent / Discharge to Surface Water / Ground

Effluent discharged from any premises carrying on a trade or industry and effluent generated by a commercial enterprise where the effluent is different to that which would arise from domestic activities in a normal home is described as trade effluent.

If you are not able to discharge effluent it will be classed as waste and you must then comply with your duty of care responsibilities.

A trade effluent consent or a trade effluent agreement with your water and sewerage company must be obtained before you discharge trade effluent to a public foul sewer or a private sewer that connects to a public foul sewer.

You may need an environmental permit if you intend discharge liquid effluent or waste water:

- into surface waters, for example, rivers, streams, estuaries, lakes, canals or coastal waters – known as 'water discharge activities'
- into or on the ground, such as spreading waste sheep dip, or discharging treated sewage effluent to ground through an infiltration system – known as 'groundwater activities'

Waste water includes:

- poisonous, noxious or polluting matter
- polluting substances
- waste matter

- trade or sewage effluent

For further guidance associated with the above please refer to:

- [Discharges to surface water and groundwater: environmental permits - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits)
- [Pollution prevention for businesses](https://www.gov.uk/guidance/pollution-prevention-for-businesses)

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We trust that you find the contents of this letter beneficial. However, you should you wish to seek further discussion or review by the EA prior to formal planning submission, then please do not hesitate to contact me.

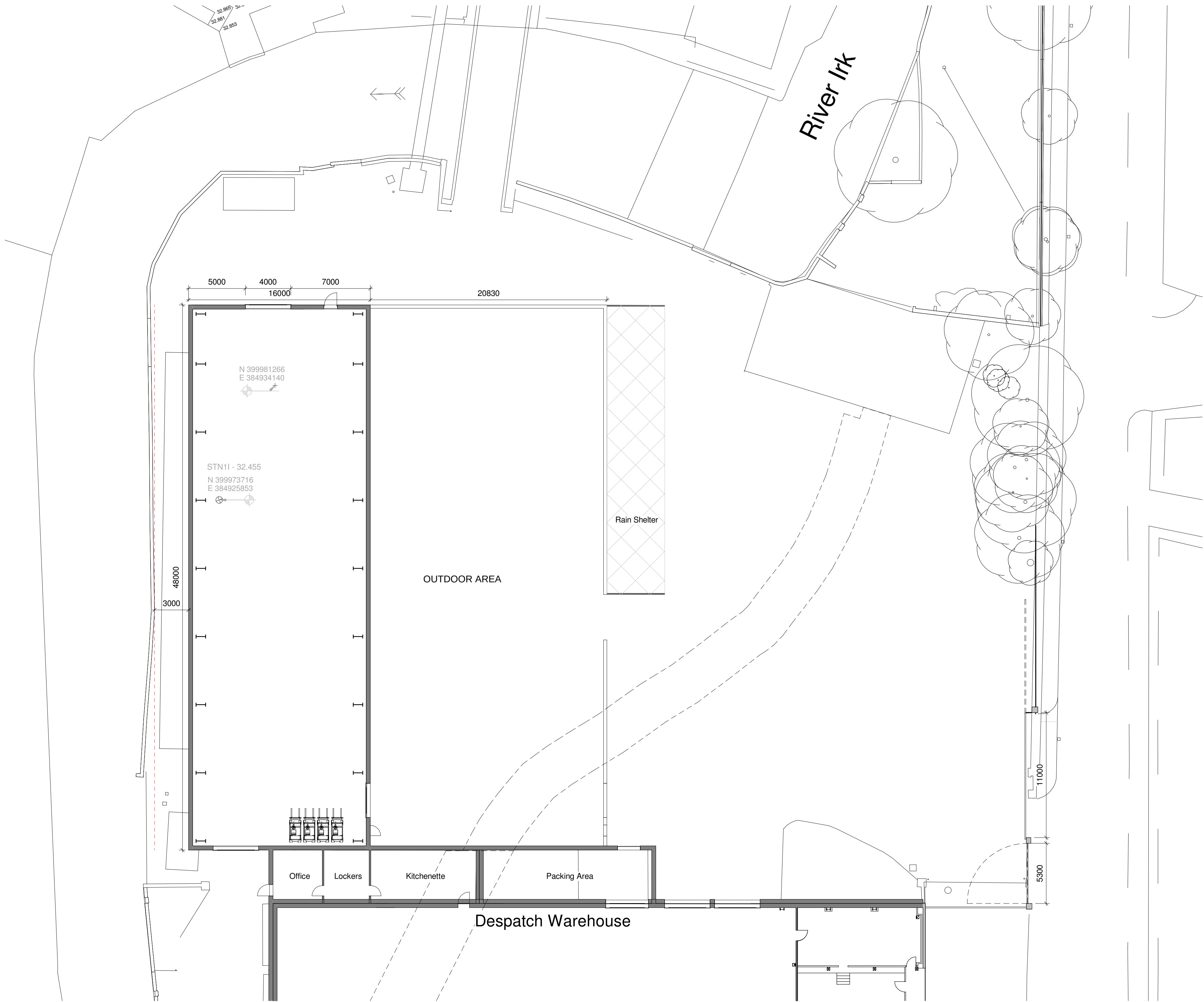
Yours faithfully

Mr Andy Davies

Sustainable Places Project Manager

Direct e-mail andy.davies1@environment-agency.gov.uk

Appendix E – Proposed Site Plans



1 08001 - Site Plan
1 : 200

Notes

The Contractor is to check all dimensions and conditions on site before commencing. Do not scale from this drawing.

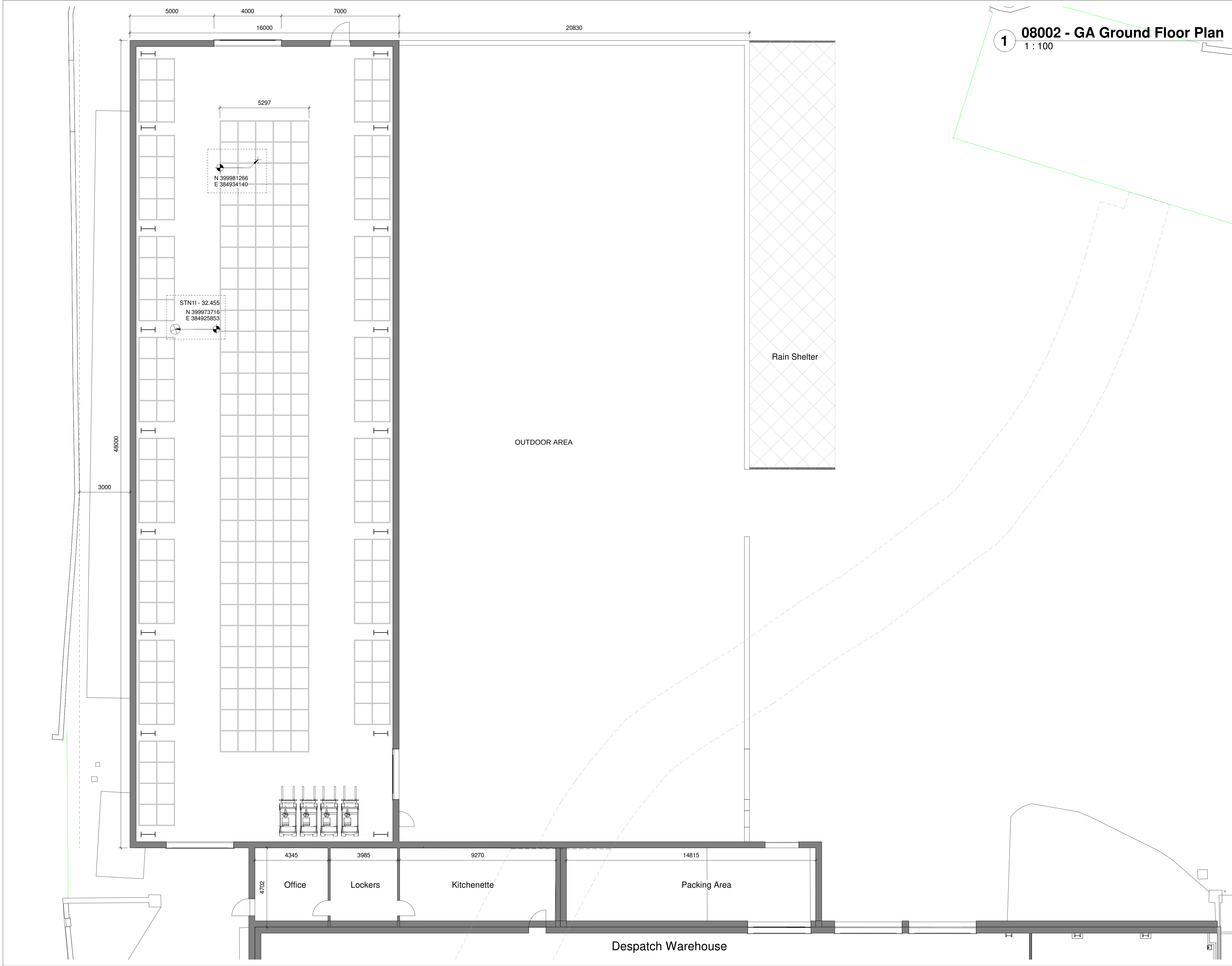
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Scale Bars TO BE USED ONLY AS GUIDANCE

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1:200	mm	0	500	1000	1500	2000	2500
1:500	M	0	5	10	15	20	25
1:1250	M	0	10	20	30	40	50

KEYPLAN

Rev	Description	By	Date
Project Status		Drawing Status	
Stage 2		S4	
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Client / Project			
HMG Paints			
Project Crystal			
Drawing			
Site Plan			
Date	30/06/22	Scale	1 : 200
Drawn By	MCA	AS	Checked
Drawn By	AS	Checked	IRC
Manchester: 55 King Street Manchester M2 4LQ +44 (0)161 831 7300 Southampton: Menor Park Minstead Southampton SO43 7FY +44 (0)23 8081 7900 Cambridge: CB1 Business Centre 20 Station Road Cambridge CB1 2JD +44 (0)1223 863 868 www.fairhursts.com			
7703-08001			
7703-FDG-DR-XX-00-A-08001			



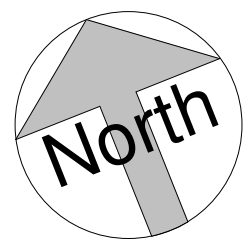
1 08002 - GA Ground Floor Plan
1 : 100

Notes
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Scale Bars		TO BE USED ONLY AS GUIDANCE			
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KEYPLAN



Note: Indicative Structural Steel Column (Awaiting Structural Design)

Rev	Description	By	Date
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Project Status	Drawing Status
Stage 2	S4

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HMG Paints

Project Crystal

Drawing
GA Ground Floor Plan

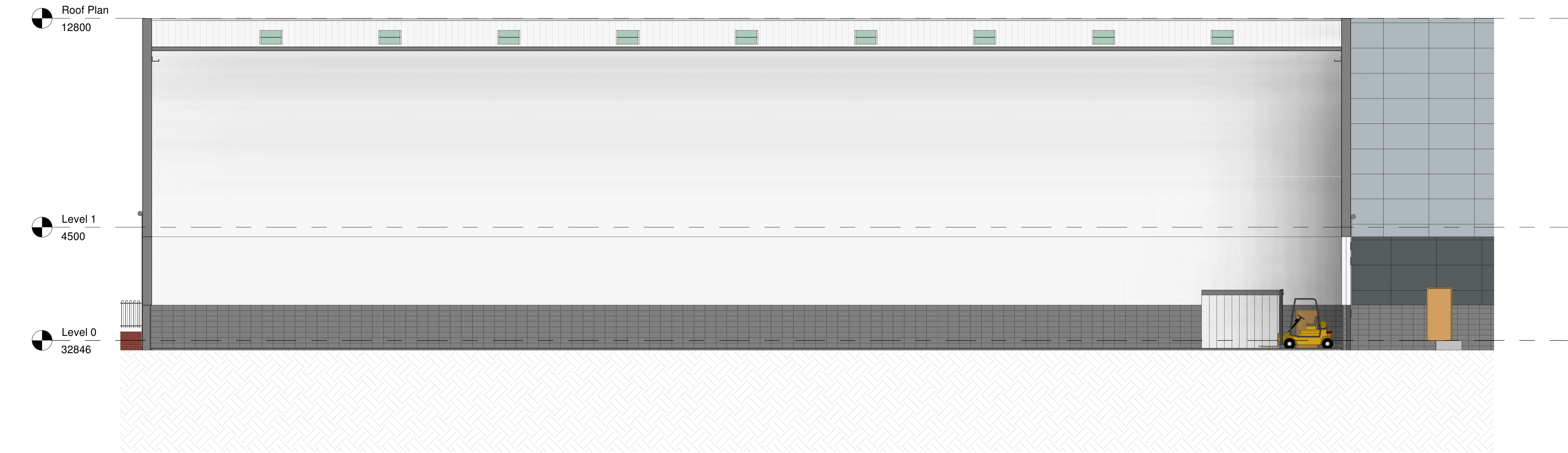
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30/06/22	1 : 100	

Drawn By	AS	Checked	IRC
MCA			

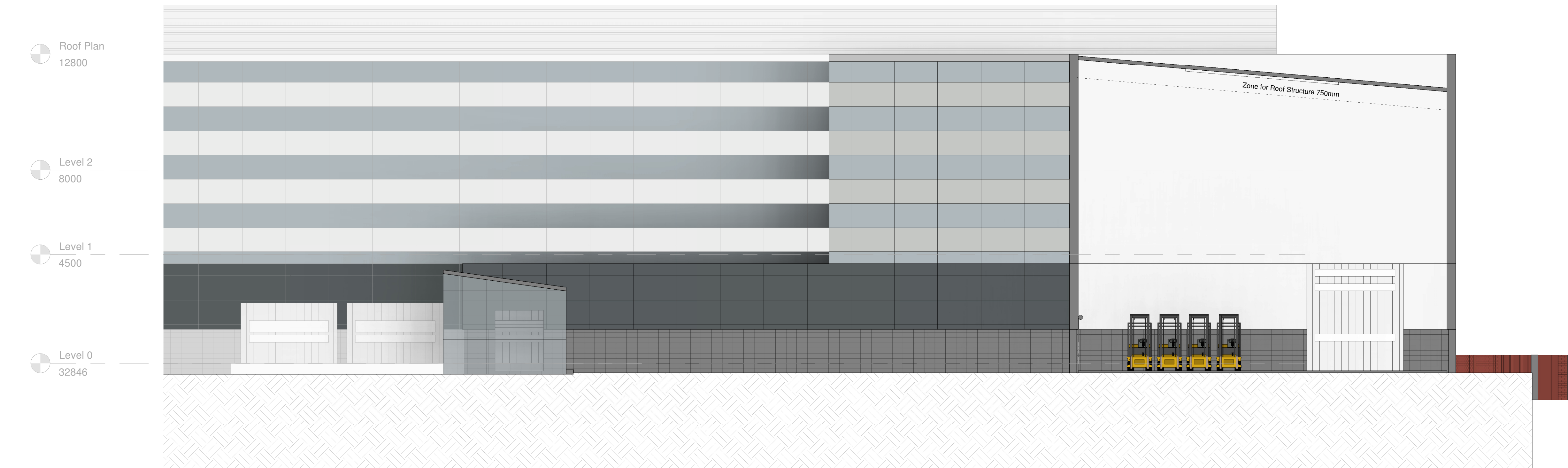
Manchester:
55 King Street
Manchester M2 4LQ
+44 (0)161 851 7500
Southampton:
Minor Park
Minstead
Southampton SO43 7FY
+44 (0)23 8031 7500
Cambridge:
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20 Station Road
Cambridge CB1 2JD
+44 (0)1223 863 868
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Rev	Description	By	Date
7703-08002			
7703-FDG-DR-XX-GF-A-08002			



1 Section A
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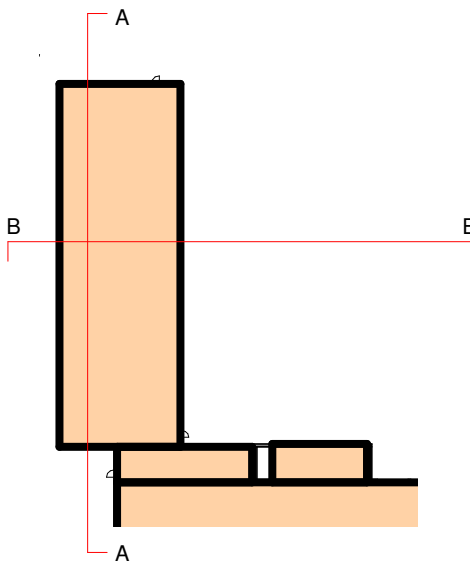
2 Section B
1 : 100

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Key Plan:



Rev	Description	By	Date
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Project Status	Drawing Status
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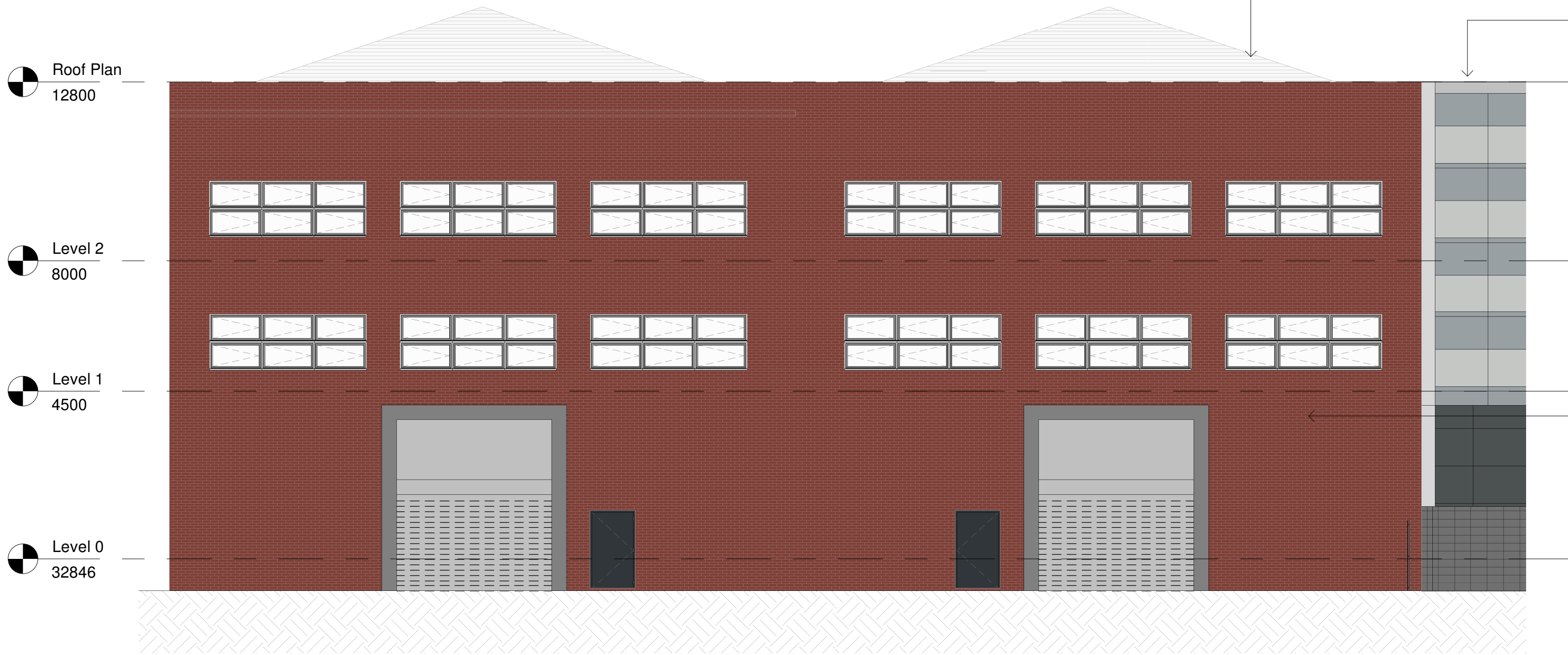
Drawing
GA Sections

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Checked		Checked		IRC

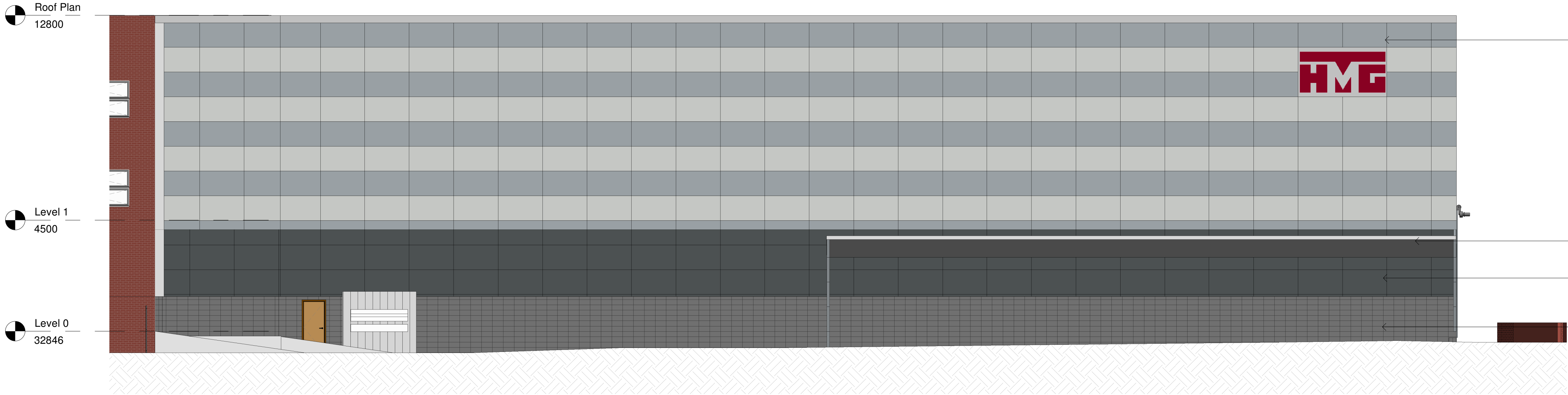
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55 King Street
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+44 (0)161 831 7300
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7703-FDG-DR-XX-XX-A-08006		

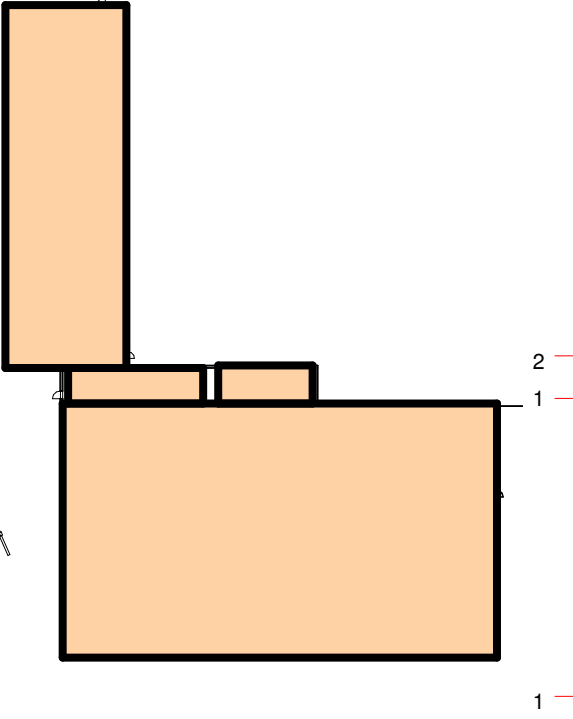


1 Elevation 1
1 : 100



2 Elevation 2
1 : 100

Key Plan:



Notes

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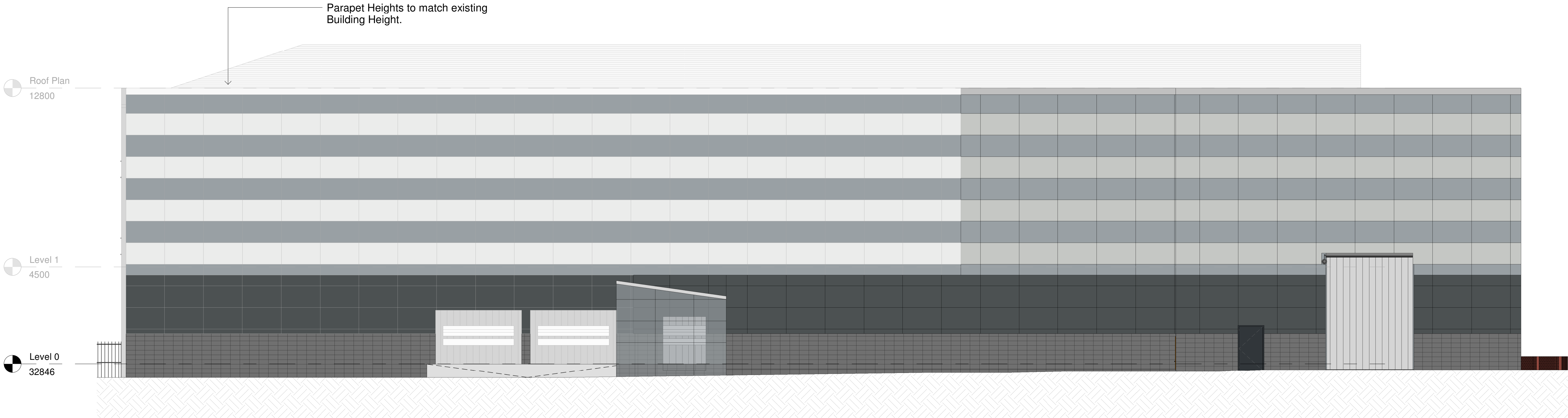
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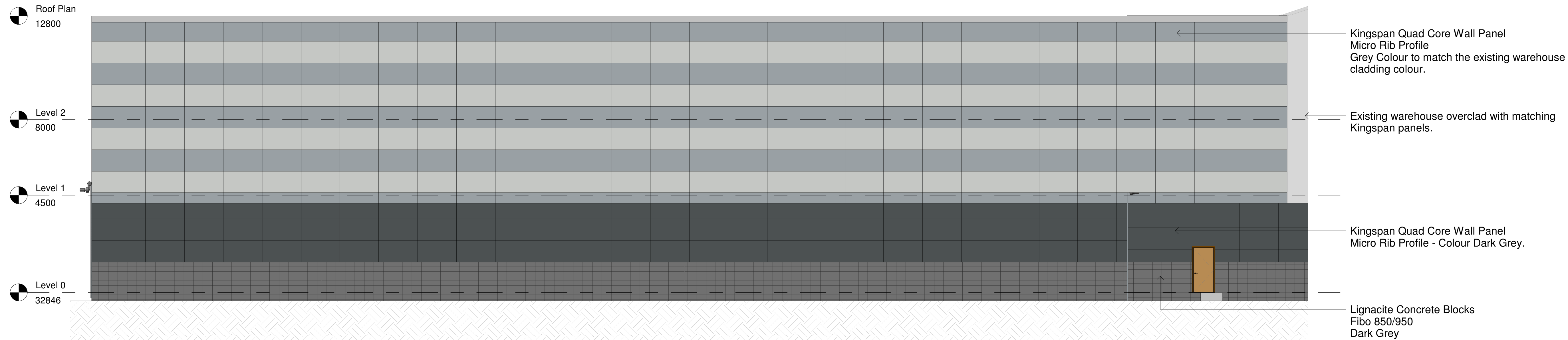
KEYPLAN

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Client / Project			
HMG Paints			
Project Crystal			
Drawing			
GA Elevations - Sheet 1			
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Drawn By	MCA	AS	Checked
IRC			
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Southampton: Menor Park Minstead Southampton SO43 7FY +44 (0)23 8081 7900			
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7703-08007		Status	Rev
7703-FDG-DR-XX-XX-A-08007			

01/07/2022 14:13:31



3 Elevation 3
1 : 100



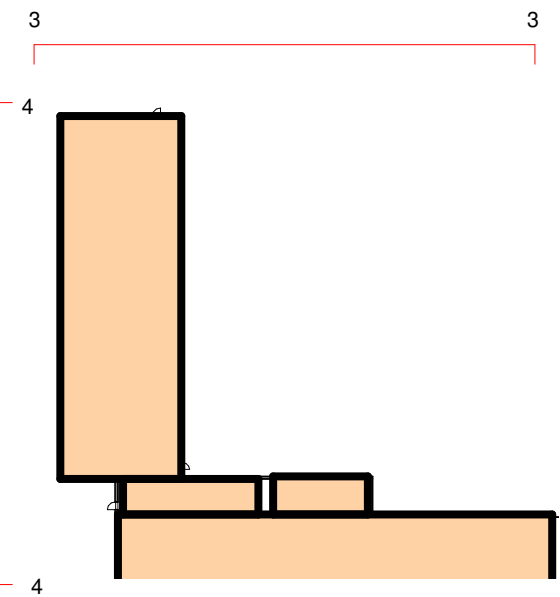
4 Elevation 4
1 : 100

Notes
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Scale Bars		TO BE USED ONLY AS GUIDANCE			
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1:1250	M	0	10	30	70

Key Plan:



Rev	Description	By	Date
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Project Status	Drawing Status
Stage 2	S4

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HMG Paints

Project Crystal

Drawing
GA Elevations - Sheet 2

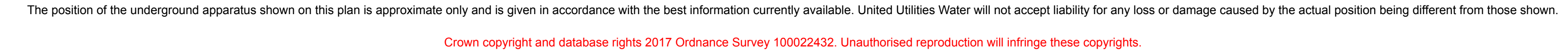
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Manchester:
55 King Street
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Southampton:
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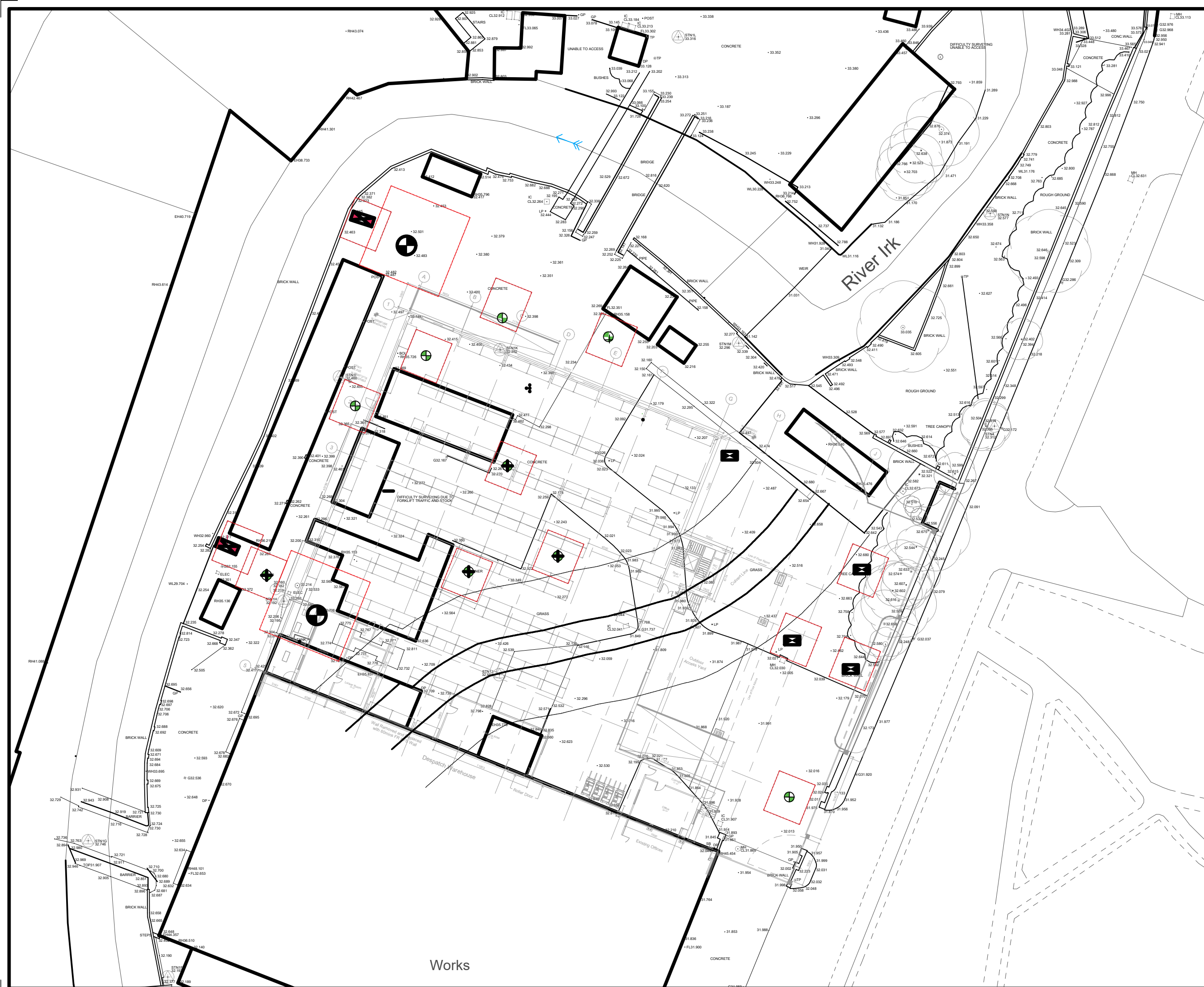
7703-08008	Status	Rev
7703-FDG-DR-XX-XX-A-08008	Status	Rev

Appendix F – UU Sewer Records



United Utilities
Water for the North West

Appendix G – BH Logs and Plan



KEY

CBR Location

Window Sample Location

Cable / Rotary Borehole location

Designated Working Area

Trial Pit Location

02	12/04/2022	Exploratory Hole Location Changes	PH	XXX
Rev	Date	Description	By	Check App.

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Client	HMG Paints Ltd
Project	Proposed New Building
Office	Altrincham
Discipline	Geo-Environmental
Title	Proposed Exploratory Hole Location

Scale @ A3	nts	Status	Preliminary
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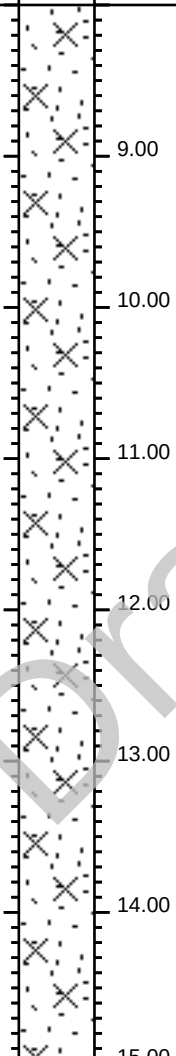
Originator	Job Number	Discipline	Building/Zone
PJH	10-1938	Geo	All
Type	Level	Drawing No.	Revision
GA	00	001	P2

Birmingham 0121 230 7800 Glasgow 0141 222 7200 Liverpool 0151 227 5300 London 020 337 8970 Manchester 0161 613 8000 Newcastle 0191 221 0752 Norwich 01603 853190 Preddhoe 01262 475375 Reading 0118 941 7888

			Project Title: HMG Paints Manchester				BH1																																											
			Project Number: 10/1938		Client: HMG Paints Ltd				Sheet 1 Of 2																																									
			GL (mAOD):		N Coord: 0		E Coord: 0																																											
Date: 25/04/2022-26/04/2022			Method:		Driller: DMW Drilling Ltd		Logged By: SP																																											
Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe																																										
0.40	ES	N=11			0.15	MADE GROUND: Concrete with no rebar.																																												
0.60	ES				0.30	MADE GROUND: Tarmac.																																												
1.20 - 1.65	SPT				1.00	MADE GROUND: Brown sandy gravel. Gravel is angular to subrounded, fine to coarse of sandstone, brick and concrete.																																												
1.90	ES SPT	N=5			0.50 - 0.80 Ashy	1.30 - 2.00 High content. Cobbles are subangular of concrete and brick.																																												
2.00 - 2.45					2.00																																													
2.90	ES SPT	N=32			2.50	MADE GROUND: Brown slightly gravelly slightly clayey sand with a low cobble content. Gravel is angular to subrounded, fine to coarse of concrete, brick, ash and sandstone. Cobbles are subangular of brick, concrete and sandstone.																																												
3.00 - 3.45					3.00	Reddish brown silty fine to medium SAND.																																												
4.00 - 4.45	SPT	pp 50/180mm			3.10	Brown gravelly SAND with a low cobble content. Gravel is subangular to rounded of sandstone. Cobbles are subangular to rounded of sandstone.	▼																																											
5.00 - 5.45	SPT	pp 50/210mm			4.00	Weathered SANDSTONE recovered as slightly silty fine to medium sand.	▽																																											
					5.00	Borehole Continues																																												
					6.00																																													
					7.00																																													
					8.00																																													
KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level			REMARKS Borehole drilled with cable percussive techniques followed on by rotary coring. No rock cores were obtained, logged as recovered soil. Ground water encountered at 4.00m rising to 3.50m. Borehole installed with ground gas and water monitoring standpipe. Scale: 1:50			Water Strikes <table><tr><th>Date</th><th>Strike</th><th>Level</th><th>Minutes</th><th>Casing</th><th>Sealed</th></tr><tr><td>28/04/2022</td><td>4</td><td>3.5</td><td>20</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Daily Log Of Depths <table><tr><th>Date</th><th>Casing</th><th>Water</th><th>From</th><th>To</th><th>Hours</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>			Date	Strike	Level	Minutes	Casing	Sealed	28/04/2022	4	3.5	20															Date	Casing	Water	From	To	Hours												
Date	Strike	Level	Minutes	Casing	Sealed																																													
28/04/2022	4	3.5	20																																															
Date	Casing	Water	From	To	Hours																																													

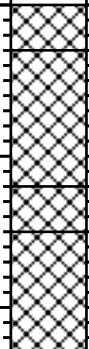
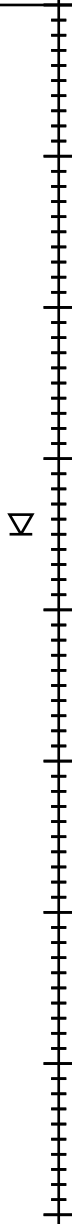
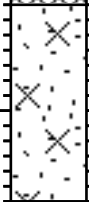
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Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe																											
0.50	ES				0.15 0.25 0.35	MADE GROUND: Concrete with 10% steel reinforcement.																													
1.20 - 1.65	SPT	N=8			1.00	MADE GROUND: Tarmac.																													
1.80	ES				1.60	MADE GROUND: Concrete with 10% steel reinforcement.																													
2.00 - 2.45	SPT	N=12			2.00	MADE GROUND: Brown becoming dark brown sandy gravel with a high cobble content. Gravel is angular to subrounded, fine to coarse of brick, concrete, sandstone, glass and metal. Cobbles are subangular of brick and concrete.																													
2.30	ES				2.60	MADE GROUND: Light brown slightly gravelly fine to medium sand. Gravel is angular to subrounded, fine to coarse of ash, concrete and brick.																													
2.70	ES				3.00	MADE GROUND: Brown slightly gravelly slightly clayey sand. Gravel is subangular to subrounded, fine to coarse of ash, concrete, sandstone and brick.																													
3.00 - 3.45	SPT	pp 50/125mm			4.00	Weathered SANDSTONE recovered as very dense slightly silty fine to medium sand.																													
4.00 - 4.45	SPT	pp 50/115mm			5.00																														
5.00 - 5.45	SPT	pp 50/160mm			6.00																														
6.00 - 6.45	SPT	pp 50/125mm			7.00																														
7.50 - 7.95	SPT	pp 50/115mm			8.00																														
						Borehole Continues																													
KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa ▽ - Groundwater Strike ▼ - Groundwater Level 			REMARKS Borehole drilled with cable percussive techniques followed on by rotary coring. No rock cores were obtained, logged as recovered soil. Ground water encountered at 4.00m rising to 3.60m. Borehole installed with ground gas and water monitoring standpipe. Scale: 1:50			Water Strikes <table><tr><th>Date</th><th>Strike</th><th>Level</th><th>Minutes</th><th>Casing</th><th>Sealed</th></tr><tr><td>28/04/2022</td><td>4</td><td>4</td><td>20</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>						Date	Strike	Level	Minutes	Casing	Sealed	28/04/2022	4	4	20														
						Date	Strike	Level	Minutes	Casing	Sealed																								
						28/04/2022	4	4	20																										
Daily Log Of Depths <table><tr><th>Date</th><th>Casing</th><th>Water</th><th>From</th><th>To</th><th>Hours</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>						Date	Casing	Water	From	To	Hours																								
Date	Casing	Water	From	To	Hours																														
Chiselling <table><tr><th>Date</th><th>Casing</th><th>Water</th><th>From</th><th>To</th><th>Hours</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>						Date	Casing	Water	From	To	Hours																								
Date	Casing	Water	From	To	Hours																														

		Project Title: HMG Paints Manchester				BH2	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022-27/04/2022		Method:		Driller: DMW Drilling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
		pp 50/160mm			9.00	Weathered SANDSTONE recovered as very dense slightly silty fine to medium sand.		
		pp 50/135mm			10.00			
		pp 50/115mm			11.00			
		pp 50/115mm			12.00			
		pp 50/220mm			13.00			
		pp 50/115mm			14.00			
					15.00	End Of Borehole At 15.00 m		
					16.00			

KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level		REMARKS Borehole drilled with cable percussive techniques followed on by rotary coring. No rock cores were obtained, logged as recovered soil. Ground water encountered at 4.00m rising to 3.60m. Borehole installed with ground gas and water monitoring standpipe. 	Water Strikes <table border="1"> <thead> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Sealed</th> </tr> </thead> <tbody> <tr> <td>28/04/2022</td> <td>4</td> <td>4</td> <td>20</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Chiselling</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Hours</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Date	Strike	Level	Minutes	Casing	Sealed	28/04/2022	4	4	20															Daily Log Of Depths			Chiselling			Date	Casing	Water	From	To	Hours												
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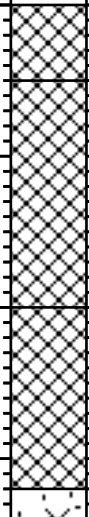
		Project Title: HMG Paints Manchester				TP1	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 27/04/2022		Method: Excavator		Driller: H and C Plant Hire Ltd		Logged By: SP	

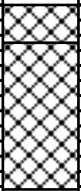
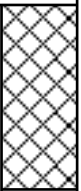
Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
2.00	B				0.30	MADE GROUND: Concrete no rebar.		
					1.00	MADE GROUND: Brown slightly sandy gravel with a high cobble content. Gravel is angular to subrounded, fine to coarse of concrete, brick, glass, slag, metal and ash. MADE GROUND: Light grey sandy gravel with a high cobble content. Gravel is angular to subrounded of concrete and brick. Cobbles are angular to subangular of brick and concrete. MADE GROUND: Brown slightly sandy gravel with a high cobble content. Gravel is angular to subrounded, fine to coarse of concrete, brick, glass, slag, metal and ash. Reddish brown fine to medium slightly silty SAND.		
					1.20			
					1.50			
					2.00			
3.40	D				2.30			
					3.00			
					3.60			
					4.00	End Of Borehole At 3.60 m		
					5.00			
					6.00			
					7.00			
					8.00			

KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value  - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level		REMARKS Trial pit excavated to understand nature of wall foundations. No foundation/toe observed. Groundwater encountered at 3.50m.	Water Strikes <table border="1"> <thead> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Sealed</th> </tr> </thead> <tbody> <tr> <td>28/04/2022</td> <td>3.5</td> <td>20</td> <td>3.4</td> <td></td> <td></td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> Daily Log Of Depths <table border="1"> <thead> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Hours</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Date	Strike	Level	Minutes	Casing	Sealed	28/04/2022	3.5	20	3.4															Date	Casing	Water	From	To	Hours												
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Scale: 1:50

			Project Title: HMG Paints Manchester				WS10				
			Project Number: 10/1938		Client: HMG Paints Ltd					Sheet 1 Of 1	
			GL (mAOD):		N Coord: 0		E Coord: 0				
Date: 27/04/2022			Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP				
Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe			
					0.50	MADE GROUND: Concrete with 10% steel reinforcement.					
			1.00		MADE GROUND: Brown sandy gravel with a low cobble content. Gravel is angular to subrounded, fine to coarse of concrete, slag, brick, glass and ash. Cobbles are subangular to subrounded of concrete and brick.						
			2.00		MADE GROUND: Grey slightly silty sand with rare brick fragments. 2.00 - 3.00 Poor recovery						
			3.00								
			3.20								
			3.40		Very dense reddish brown slightly silty fine to medium SAND.						
			4.00		End Of Borehole At 3.40 m						
			5.00								
			6.00								
			7.00								
			8.00								
KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level 			REMARKS No Groundwater Encountered Borehole undertaken to obtain wall foundation information. Borehole terminated due to refusal. Scale: 1:50			Water Strikes					
						Date	Strike	Level	Minutes	Casing	Sealed
						Daily Log Of Depths			Chiselling		
						Date	Casing	Water	From	To	Hours

			Project Title: HMG Paints Manchester				WS1a																																																	
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Date: 26/04/2022			Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP																																																	
Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe																																																
1.00 - 1.22	SPT				0.25	MADE GROUND: Light grey decorative limestone gravel over, concrete with no rebar. MADE GROUND: Brown sandy gravel with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of concrete and brick. Cobbles are subangular of brick. End Of Borehole At 1.22 m																																																		
					1.00																																																			
					1.22																																																			
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		Project Title: HMG Paints Manchester				WS1b	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.50	ES				0.30	MADE GROUND: Light grey decorative limestone gravel, over dark brown silty gravel. Gravel is angular to subrounded, fine to coarse of ash, concrete and brick.		
1.00 - 1.08	SPT	pp 50/50mm			1.00 1.08		MADE GROUND: Brown slightly sandy gravel with a high cobble content. Gravel is angular to subrounded, fine to coarse of concrete, brick and timber. Cobbles of brick and concrete.	
					1.08	End Of Borehole At 1.08 m		
					2.00			
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level 		REMARKS No Groundwater Encountered Borehole terminated due to SPT refusal. Scale: 1:50		Water Strikes																									
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Date	Casing	Water	From	To	Hours																								

		Project Title: HMG Paints Manchester				WS3a	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 27/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.25	MADE GROUND: Concrete with no rebar.		
					0.40	MADE GROUND: Brown sandy gravel with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of concrete, sandstone and brick. Cobbles are subangular to subrounded of sandstone.		
					1.00	End Of Borehole At 0.40 m		
					2.00			
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level		REMARKS No Groundwater Encountered Borehole terminated due to refusal (cobble). 	Water Strikes <table border="1"> <thead> <tr> <th>Date</th> <th>Strike</th> <th>Level</th> <th>Minutes</th> <th>Casing</th> <th>Sealed</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="3">Daily Log Of Depths</th> <th colspan="3">Chiselling</th> </tr> <tr> <th>Date</th> <th>Casing</th> <th>Water</th> <th>From</th> <th>To</th> <th>Hours</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	Date	Strike	Level	Minutes	Casing	Sealed																			Daily Log Of Depths			Chiselling			Date	Casing	Water	From	To	Hours												
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Daily Log Of Depths			Chiselling																																																
Date	Casing	Water	From	To	Hours																																														

Scale: 1:50

		Project Title: HMG Paints Manchester				WS3b	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 27/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
					0.25	MADE GROUND: Concrete with no rebar.		
					0.40	MADE GROUND: Brown sandy gravel with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of concrete, sandstone and brick. Cobbles are subangular to subrounded of sandstone.		
					1.00	End Of Borehole At 0.40 m		
					2.00			
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

KEY

D - Disturbed Sample
B - Bulk Sample
U - Undisturbed
W - Water Sample
S - Standard Penetration Test
C - Cone Penetration Test
N - Penetration Test 'N' Value
V - Hand Shear Vane kPa
 - Groundwater Strike
 - Groundwater Level



REMARKS

No Groundwater Encountered
Borehole terminated due to refusal (cobble).

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths **Chiselling**

Date	Casing	Water	From	To	Hours

		Project Title: HMG Paints Manchester				WS4	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.50	ES	N=4 pp 50/285mm			0.10	MADE GROUND: Tarmac.		
1.00 - 1.45	SPT				0.90 1.00	MADE GROUND: Brown sandy gravel with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of concrete, brick, glass and sandstone. Cobbles are subangular of brick and concrete.		
1.50	ES					MADE GROUND: Dark becoming light brown slightly gravelly slightly clayey sand. Gravel is angular to subrounded, fine to coarse of slag, concrete and sandstone. Cobbles are subangular of concrete.		
2.00 - 2.43	SPT				2.00 2.43	End Of Borehole At 2.43 m		
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level 		REMARKS No Groundwater Encountered Borehole terminated due to SPT refusal (cobble). Scale: 1:50		Water Strikes																									
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Date	Casing	Water	From	To	Hours																								

		Project Title: HMG Paints Manchester				WS5	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.70	ES	N=4			0.15	MADE GROUND: Concrete with no rebar.		
1.00 - 1.45	SPT				0.25	MADE GROUND: Tarmac.		
1.50	ES				0.30	MADE GROUND: Concrete with no rebar.		
2.00 - 2.39	SPT		pp 50/237mm			0.40	MADE GROUND: Red gravel. Gravel is subangular to subrounded, fine to coarse of brick.	
					1.00	MADE GROUND: Brown sandy gravel with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of concrete, slag, brick and ash. Cobbles are subangular to subrounded of concrete and brick.		
					1.80			
					2.00			
					2.39	MADE GROUND: Light brown slightly gravelly sand with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of sandstone and brick. Cobbles are subangular to subrounded of brick.		
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

KEY

- D - Disturbed Sample
- B - Bulk Sample
- U - Undisturbed
- W - Water Sample
- S - Standard Penetration Test
- C - Cone Penetration Test
- N - Penetration Test 'N' Value
- V - Hand Shear Vane kPa
-  - Groundwater Strike
-  - Groundwater Level



REMARKS

No Groundwater Encountered
Borehole terminated due to SPT refusal (cobble). Borehole installed with ground gas and water monitoring standpipe.

Scale: 1:50

Water Strikes

Date	Strike	Level	Minutes	Casing	Sealed

Daily Log Of Depths

Date	Casing	Water	From	To	Hours

		Project Title: HMG Paints Manchester				WS6	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.50	ES				0.15 0.25	MADE GROUND: Concrete with no rebar. MADE GROUND: Tarmac.		
1.00 - 1.45	SPT	N=4			1.00	MADE GROUND: Brown sandy gravel with a low cobble content. Gravel is angular to subrounded, fine to coarse of concrete, slag, brick, sandstone and ash. Cobbles are subangular to subrounded of concrete and brick.		
1.50	ES							
2.00 - 2.45	SPT	N=4			2.00	MADE GROUND: Light brown slightly gravelly sand with a moderate cobble content. Gravel is angular to subrounded, fine to coarse of sandstone and brick. Cobbles are subangular to subrounded of brick.		
2.60	ES				2.50			
3.00 - 3.17	SPT	pp 50/90mm			3.00 3.17	Very dense reddish brown slightly silty fine to medium SAND.		
						End Of Borehole At 3.17 m		
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

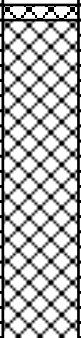
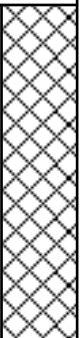
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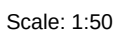
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			Project Number: 10/1938		Client: HMG Paints Ltd			
			GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 27/04/2022			Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.60	ES	N=10 pp 50/132mm			0.25 0.40	MADE GROUND: Concrete with 10% steel reinforcement.		
1.00 - 1.45	SPT				1.00	MADE GROUND: Grey gravel. Gravel is subangular to subrounded, fine to coarse of concrete.		
1.60 - 2.05	SPT				1.87 2.00	MADE GROUND: Brown sandy gravel with a low moderate content. Gravel is angular to subrounded, fine to coarse of concrete, slag, brick, sandstone and ash. Cobbles are subangular to subrounded of concrete and brick.		
					End Of Borehole At 1.87 m			
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level 			REMARKS No Groundwater Encountered Borehole terminated due to SPT refusal. Borehole installed with ground gas and water monitoring standpipe. Scale: 1:50			Water Strikes																							
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						Date	Casing	Water	From	To	Hours																		

		Project Title: HMG Paints Manchester				WS8	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.50	ES	N=10 pp 50/155mm			0.10	MADE GROUND: Tarmac. MADE GROUND: Brown slightly gravelly sand with a high cobble content. Gravel is angular to subrounded, fine to coarse of brick, sandstone and concrete. Cobbles are angular to subangular of concrete.		
1.00 - 1.45	SPT		1.00					
1.50	ES		2.00					
2.00 - 2.31	SPT		2.31					
						End Of Borehole At 2.31 m		
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

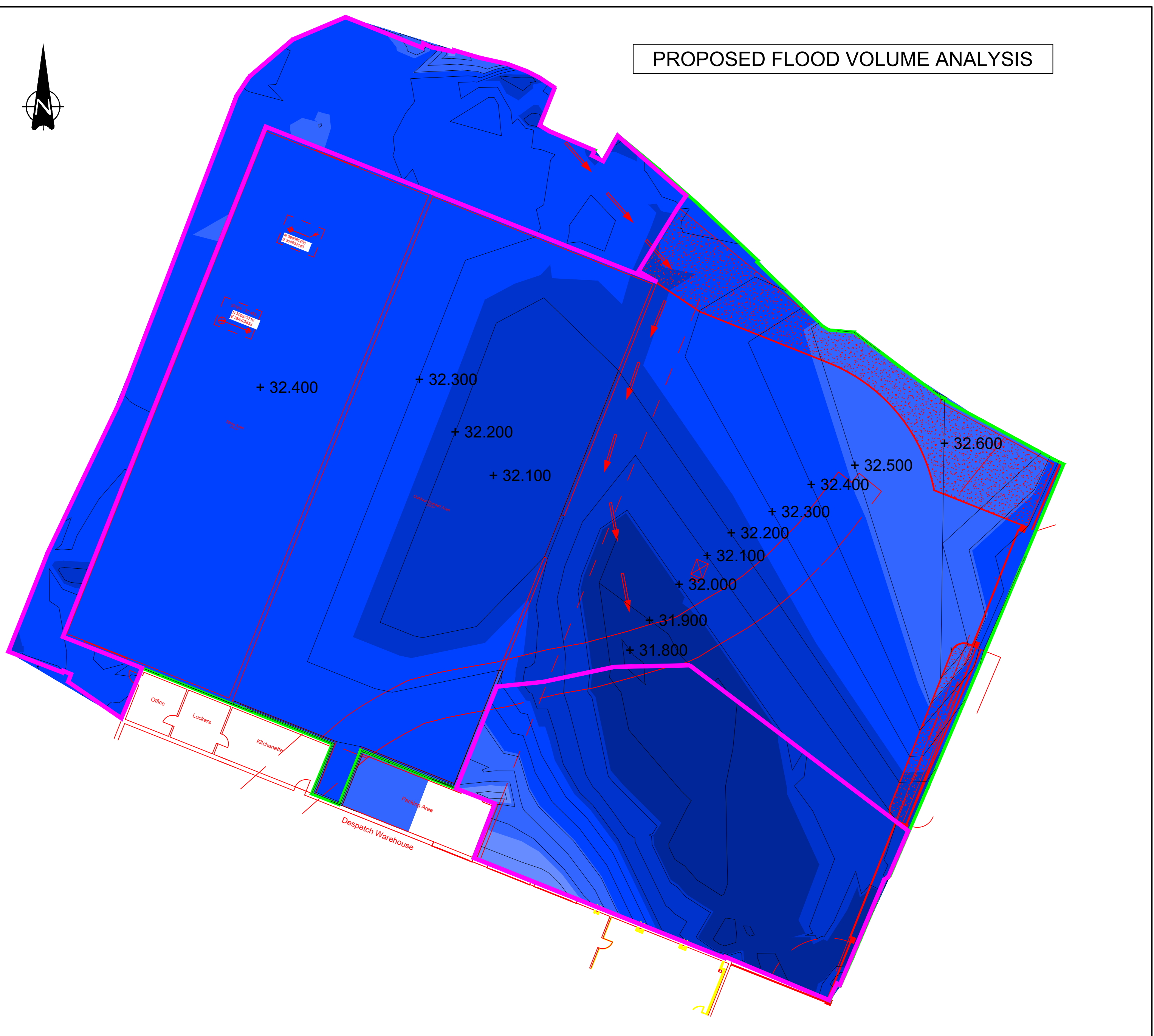
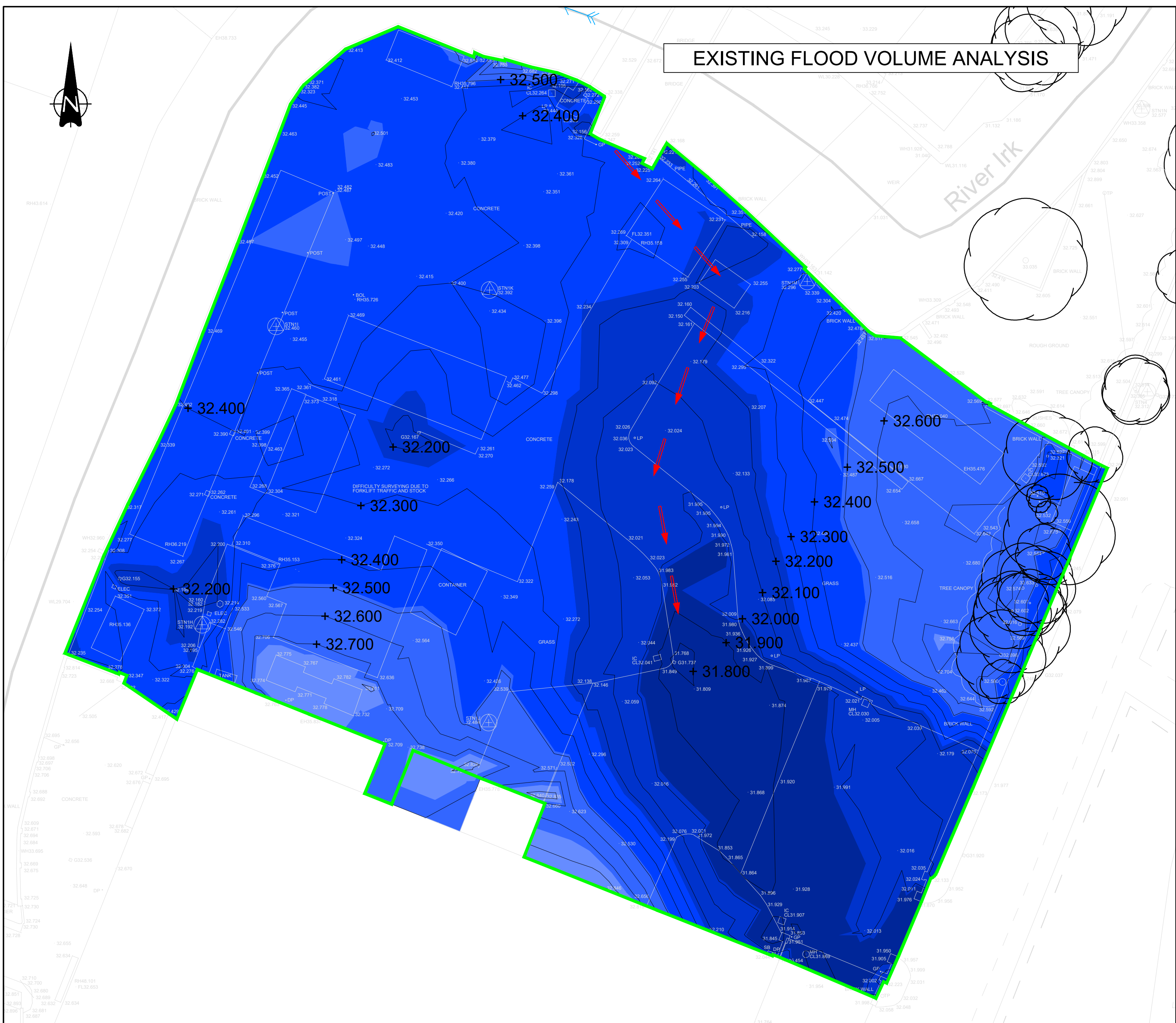
KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed W - Water Sample S - Standard Penetration Test C - Cone Penetration Test N - Penetration Test 'N' Value V - Hand Shear Vane kPa  - Groundwater Strike  - Groundwater Level 		REMARKS No Groundwater Encountered Borehole terminated due to SPT refusal (cobble).  Scale: 1:50		Water Strikes																									
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		Project Title: HMG Paints Manchester				WS9	
		Project Number: 10/1938		Client: HMG Paints Ltd			
		GL (mAOD):		N Coord: 0		E Coord: 0	
Date: 26/04/2022		Method: Window Sampler		Driller: Dynamic Sampling Ltd		Logged By: SP	

Depth (m)	Type	Test Result	Level	Legend	Depth (m)	Description	Water	Standpipe
0.50	ES	N=11 pp 50/130mm			0.30	MADE GROUND: Grass over, soft dark brown slightly gravelly silt with rootlets towards top of unit. Gravel is angular to subrounded, fine to coarse of clinker, mudstone and brick.		
1.00 - 1.45	SPT				1.00	MADE GROUND: Brown cobbly gravel. Gravel is angular to subrounded, fine to coarse of sandstone, brick, ash and concrete.		
1.50	ES				1.80	MADE GROUND: Light brown slightly clayey slightly gravelly sand. Gravel is angular to subrounded, fine to coarse of sandstone, concrete and brick.		
2.00 - 2.27	SPT				2.00 2.27	MADE GROUND: Brown gravelly sand. Gravel is subangular to rounded, fine to coarse of slag, brick and sandstone. End Of Borehole At 2.27 m		
					3.00			
					4.00			
					5.00			
					6.00			
					7.00			
					8.00			

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Appendix H – Flood Volume Extents and Sections



FLOOD VOLUME COMPARISON BETWEEN EXISTING AND PROPOSED LEVELS UPTO THE PREDICTED 100 YEAR PLUS 35% FLOOD LEVEL									
Level (m AOD)	Level (m AOD)	Band depth (m)	Existing volume per band (m3)	Cumulative (m3)	Proposed volume per band (m3)	Cumulative (m3)	Difference per band (m3)	Difference Cumulative (m3)	
31.737	-	31.987	0.250	29.45	29.45	31.98	2.53	2.53	
31.987	-	32.237	0.250	224.64	254.09	225.23	0.59	3.12	
32.237	-	32.487	0.250	614.71	868.80	696.97	82.26	85.38	
32.487	-	32.737	0.250	1010.28	1879.08	1084.25	73.97	159.35	
32.737	-	32.987	0.250	1123.95	3003.03	1128.82	4.87	164.22	
32.987	-	33.160	0.173	780.13	3783.16	782.13	2.00	166.22	

Notes

1) 31.737 is the lowest level on the site.

2) 33.160 is the predicted 100 year plus 35% climate change flood level.

3) Slab level set at 32.4m AOD.

TABLE 1

KEY:

FLOOD VOLUME 31.737 - 31.987

FLOOD VOLUME 31.987 - 32.237

FLOOD VOLUME 32.237 - 32.487

FLOOD VOLUME 32.487 - 32.737

FLOOD VOLUME 32.737 - 32.987

FLOOD VOLUME 32.987 - 31.600

FLOOD FLOW PATH

SITE BOUNDARY

LEVELS MAINTAINED WITHIN THIS ZONE

CONTOUR LEVELS

PROPOSED DEVELOPMENT

TOPOGRAPHICAL SURVEY

+ 32.100

- NOTES:
- THIS DRAWING HAS BEEN PRODUCED TO COMPARE THE EXISTING FLOOD VOLUMES AGAINST THE PROPOSED FLOOD VOLUMES.
 - LEVEL HAVE BEEN DESIGNED FOR THE PROPOSED SITE TO MAINTAIN OR BETTER FLOOD VOLUMES PER 250mm BAND.
 - THE LOWEST LEVEL ON THE SITE IS RECORDED AT 31.737m AOD THEREFORE HAS BEEN SET AS THE BASE LEVEL FOR THE 250mm BANDS.
 - THE ENVIRONMENT AGENCY HAVE CONFIRMED THE CLIMATE CHANGE LEVEL SHOULD BE THE 1 IN 100 YEAR PLUS 35% CLIMATE CHANGE. THIS LEVEL HAS BEEN CALCULATED AT 31.660m AOD.
 - TABLE 1 SHOWS THE VOLUMES PER BAND FOR BOTH EXISTING AND PROPOSED SCENARIOS.
 - THE PROPOSED STORAGE FACILITY IS INTENDED TO FLOOD UP TO THE +35% CLIMATE CHANGE LEVEL.
 - THE BUILDING IS TO BE FITTED WITH A FLOOD SYSTEM AT EACH CORNER OF THE BUILDING TO ALLOW FLOOD WATER TO ENTER & EXIT THE BUILDING.
 - FLOOD FLOW PATHS HAVE BEEN MAINTAINED IN THE PROPOSED SCENARIO AS SHOWN ON PLAN (RED ARROWS).

P02 16.09.22	FOLLOWING EA COMMENTS	CD	PF	CA
P01 20.05.22	FIRST ISSUE	CD	PF	CA
Rev	Date	By	Check	App.

Client: HMG PAINTS LTD

Project: HMG PAINTS, MANCHESTER

Office: ALTRINCHAM

Discipline: CIVIL AND STRUCTURAL

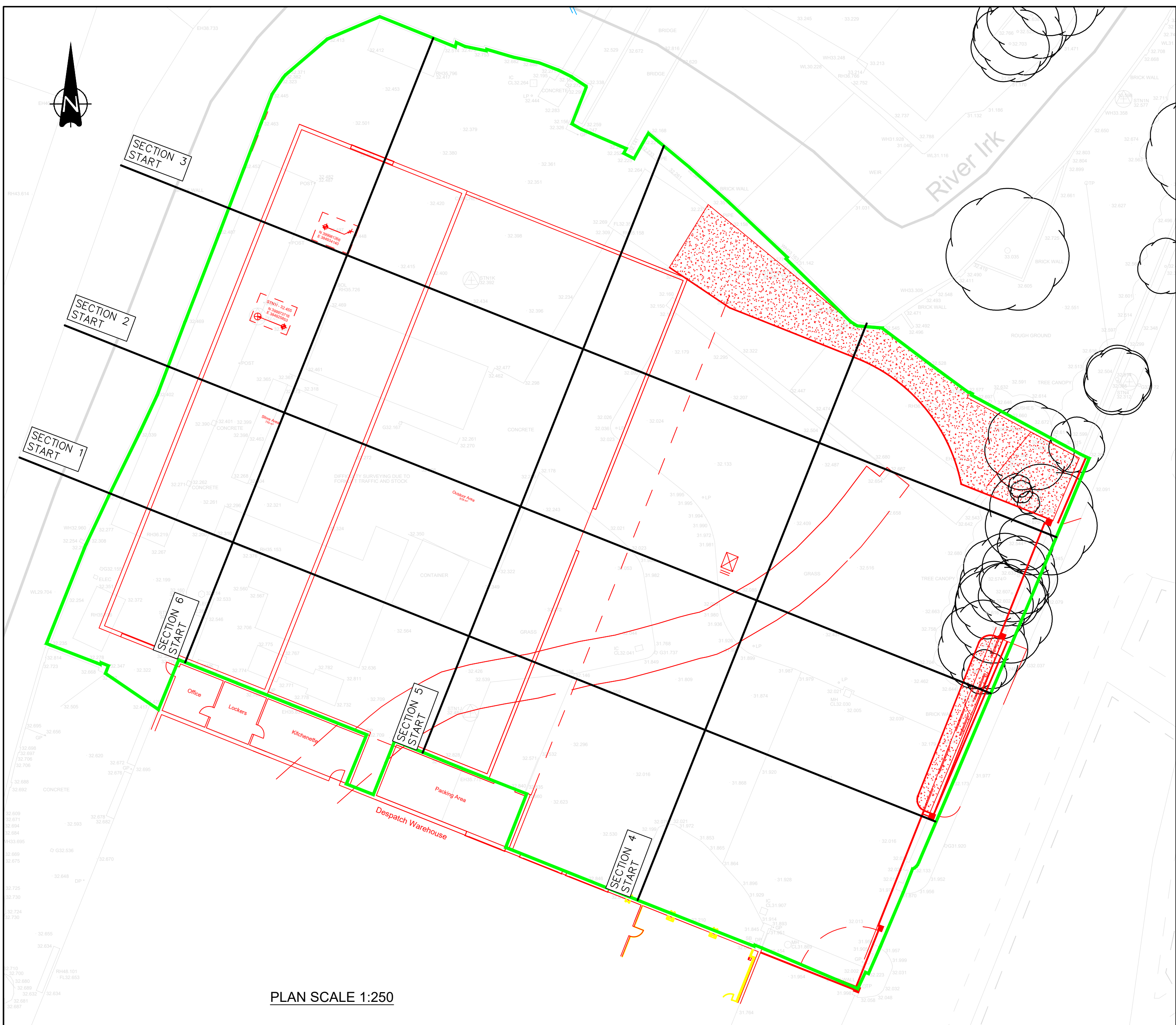
Title: EXISTING AND PROPOSED FLOOD EXTENTS

Scale @ A1: 250

Status: PRELIMINARY

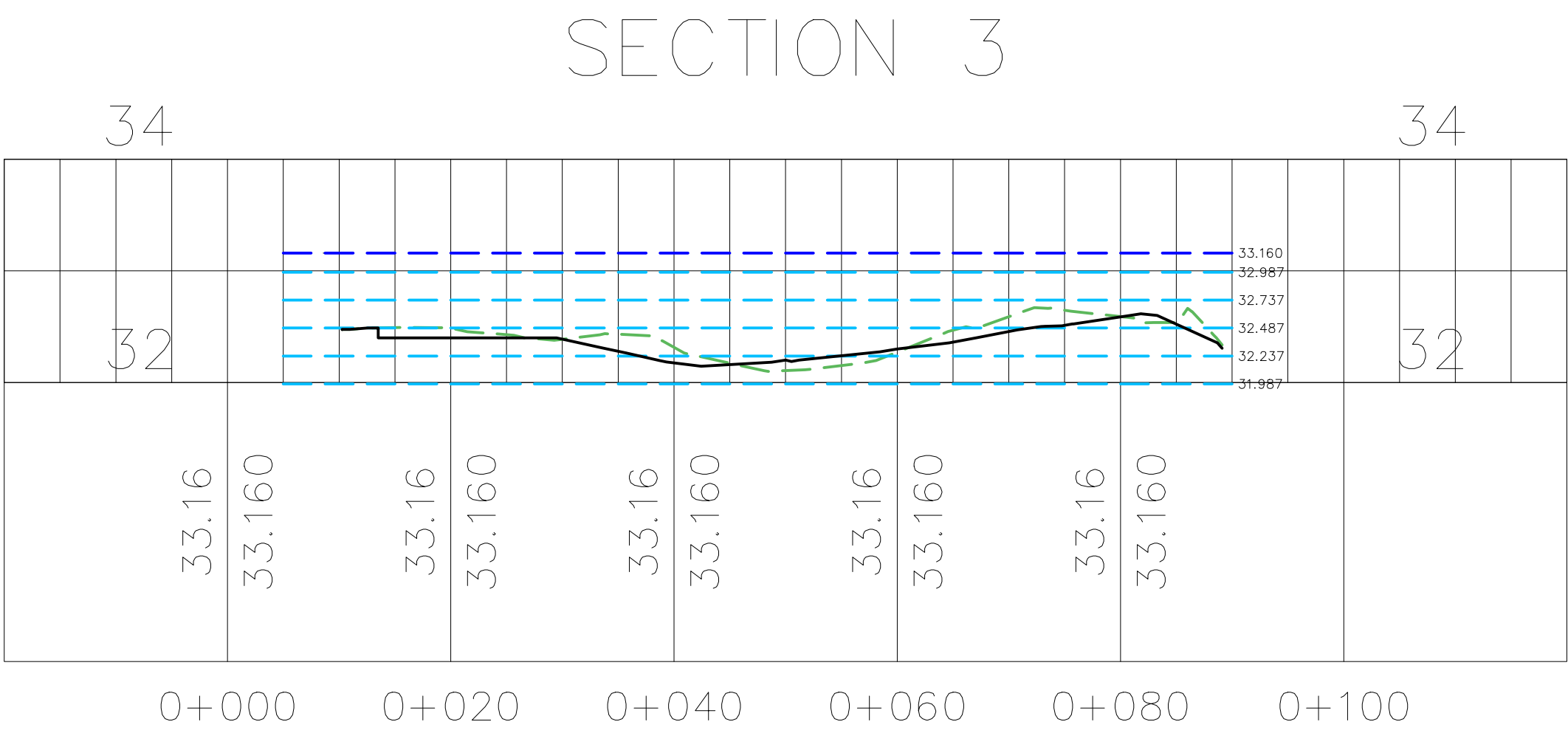
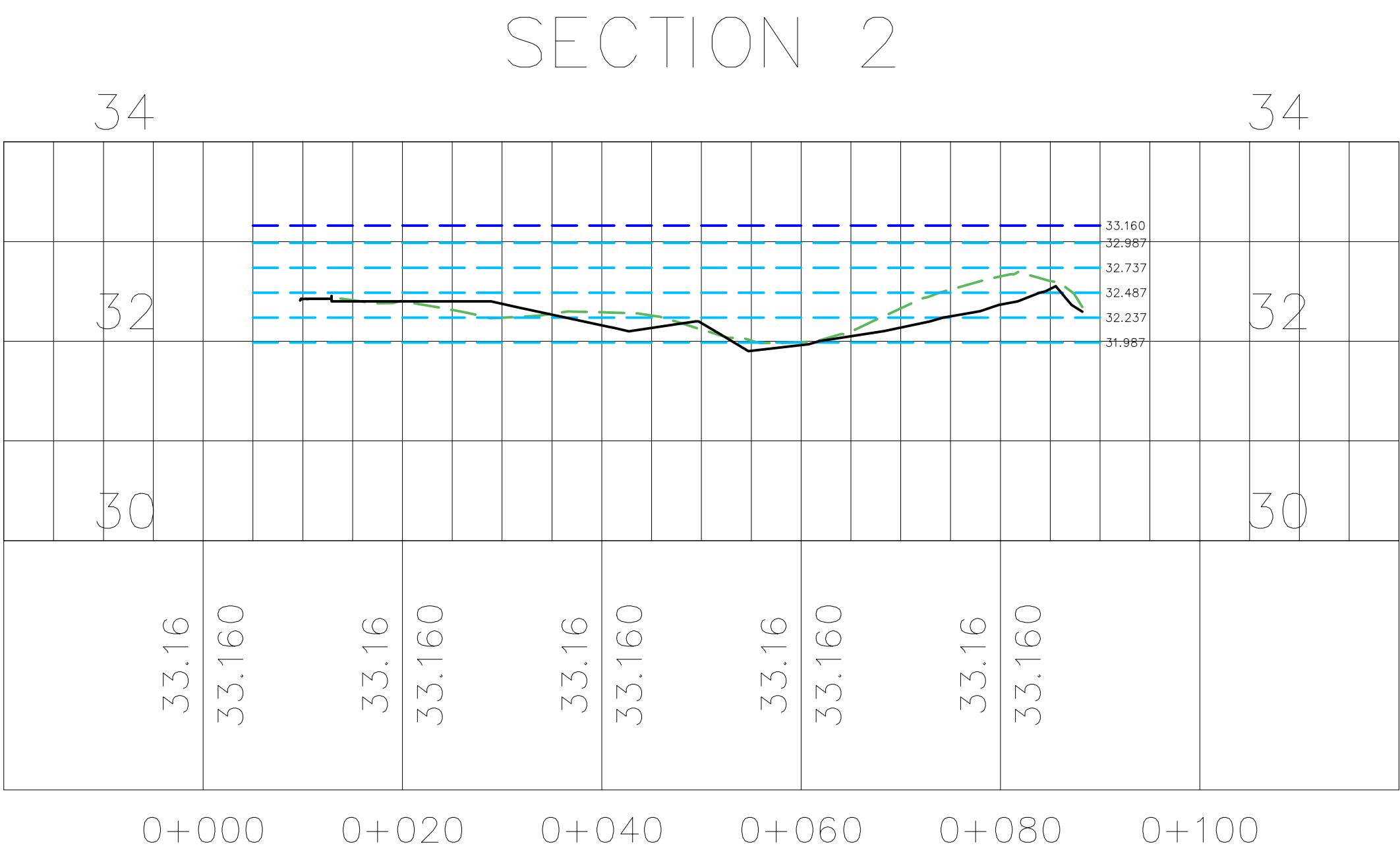
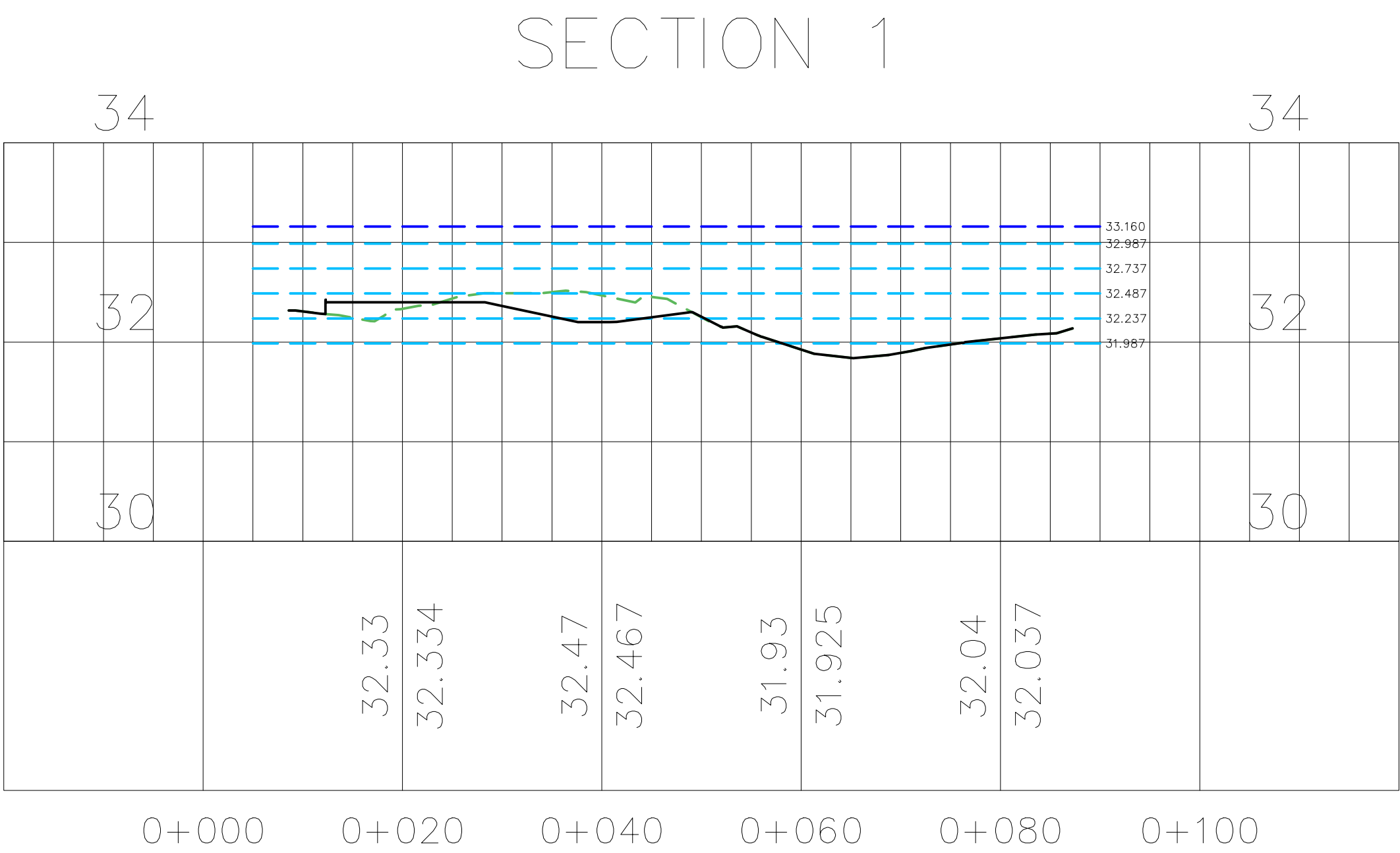
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Job Number	Originator	Building/Zone	Level
1/21268	CCL	00	00
Type	Discipline	Drawing No.	Revision
DR	C	001	P02



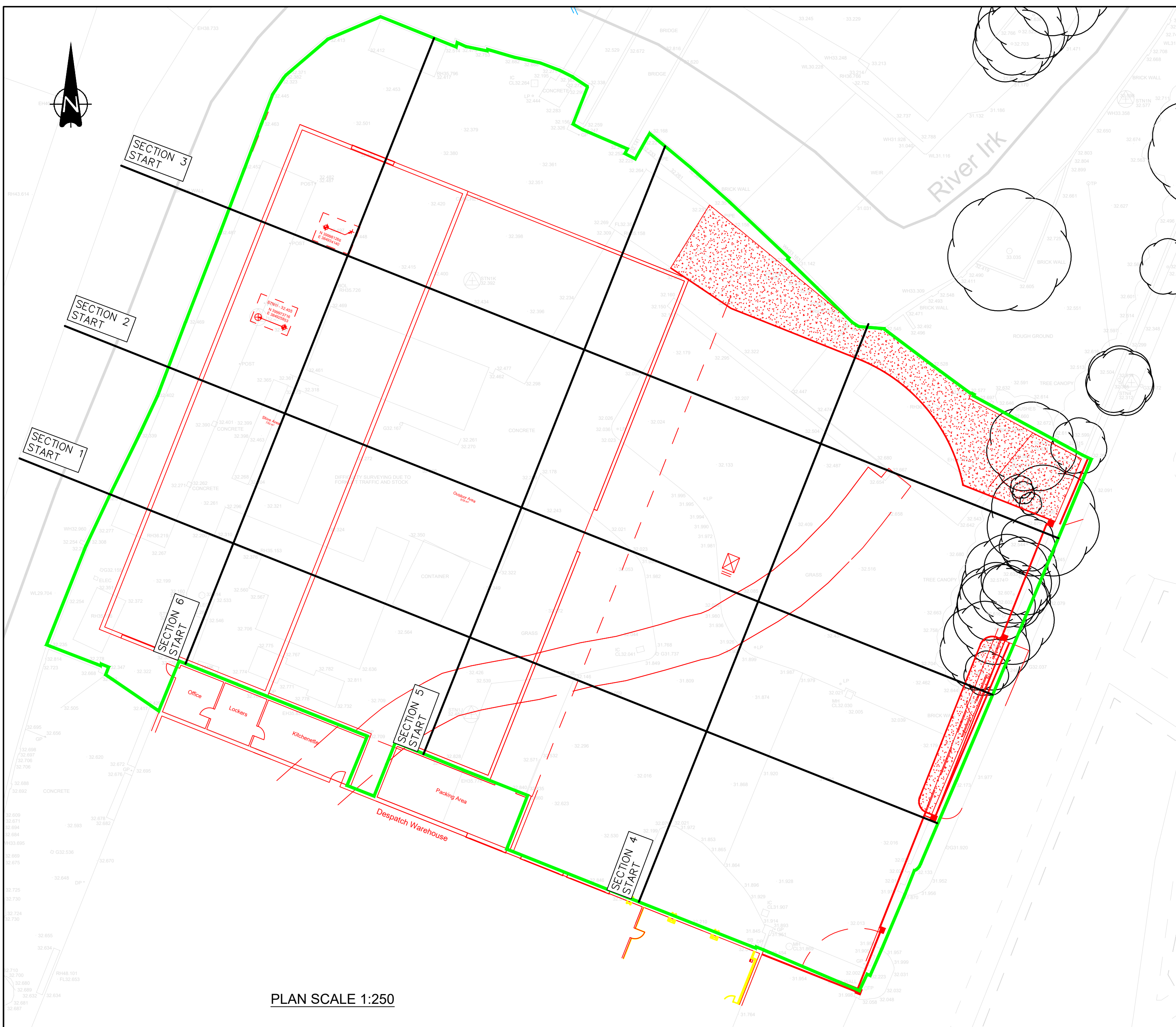
PLAN SCALE 1:250

KEY PLAN:	
SITE BOUNDARY	
PROPOSED DEVELOPMENT	
TOPOGRAPHICAL SURVEY	
KEY SECTION:	
EXISTING GROUND	
PROPOSED GROUND	
+35% CC FLOOD LEVEL	
250mm BANDING	



SECTION SCALE 1:500H - 1:100V

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Rev	Date		CD	PF	CA
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Project HMG PAINTS, MANCHESTER					
Office ALTRINCHAM					
Discipline CIVIL AND STRUCTURAL					
Title SITE SECTIONS SHEET 1 OF 2					
Scale @ A1 AS SHOWN			Status PRELIMINARY		
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Job Number 1/21268		Originator CCL		Building/Zone 00	
				Level 00	
Type DR		Discipline C		Drawing No. 002	
				Revision P02	



PLAN SCALE 1:250

KEY PLAN:

SITE BOUNDARY

PROPOSED DEVELOPMENT

TOPOGRAPHICAL SURVEY

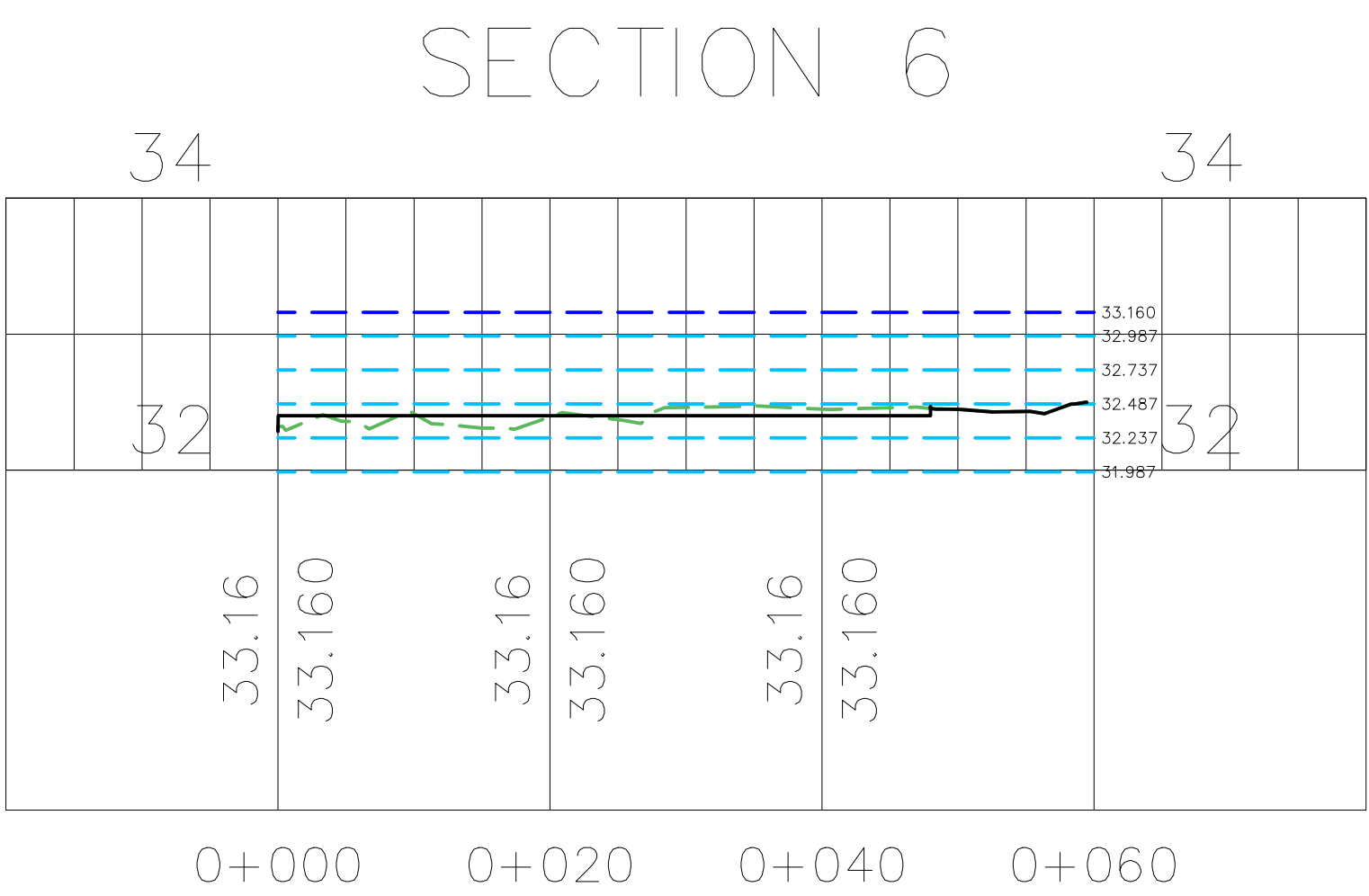
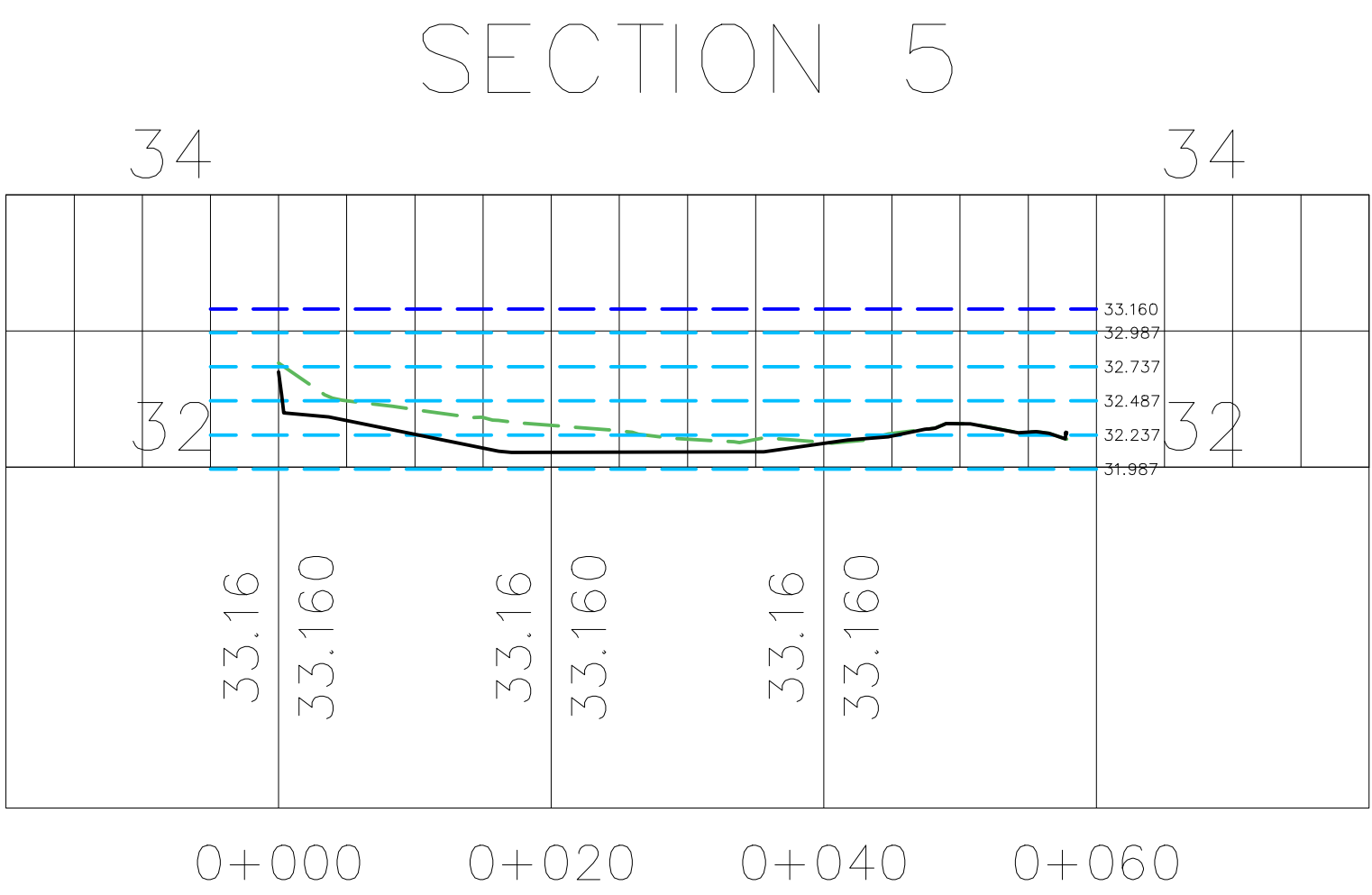
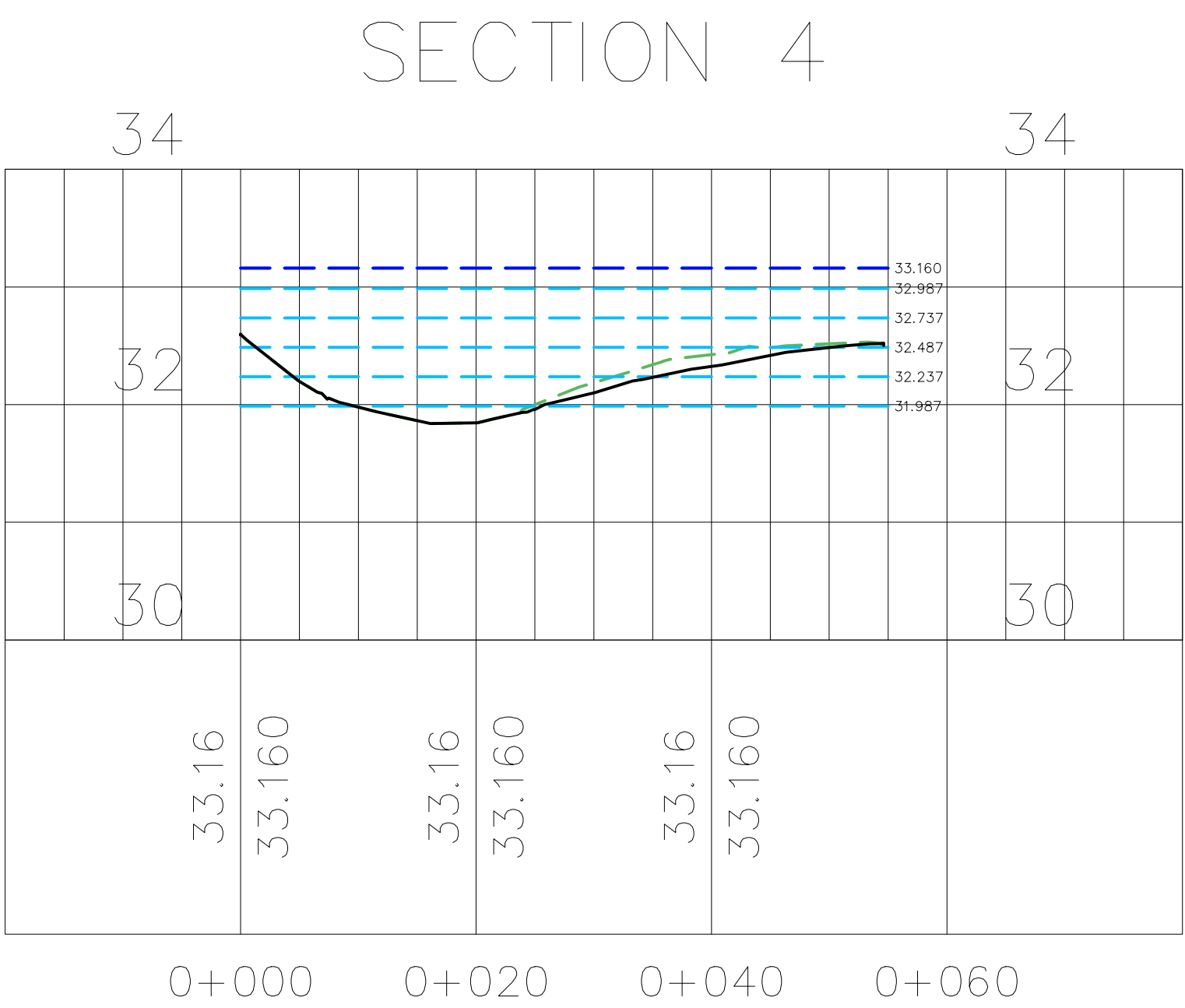
KEY SECTION:

EXISTING GROUND

PROPOSED GROUND

+35% CC FLOOD LEVEL

250mm BANDING



SECTION SCALE 1:500H - 1:100V

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Rev	Date	By	Check	App.

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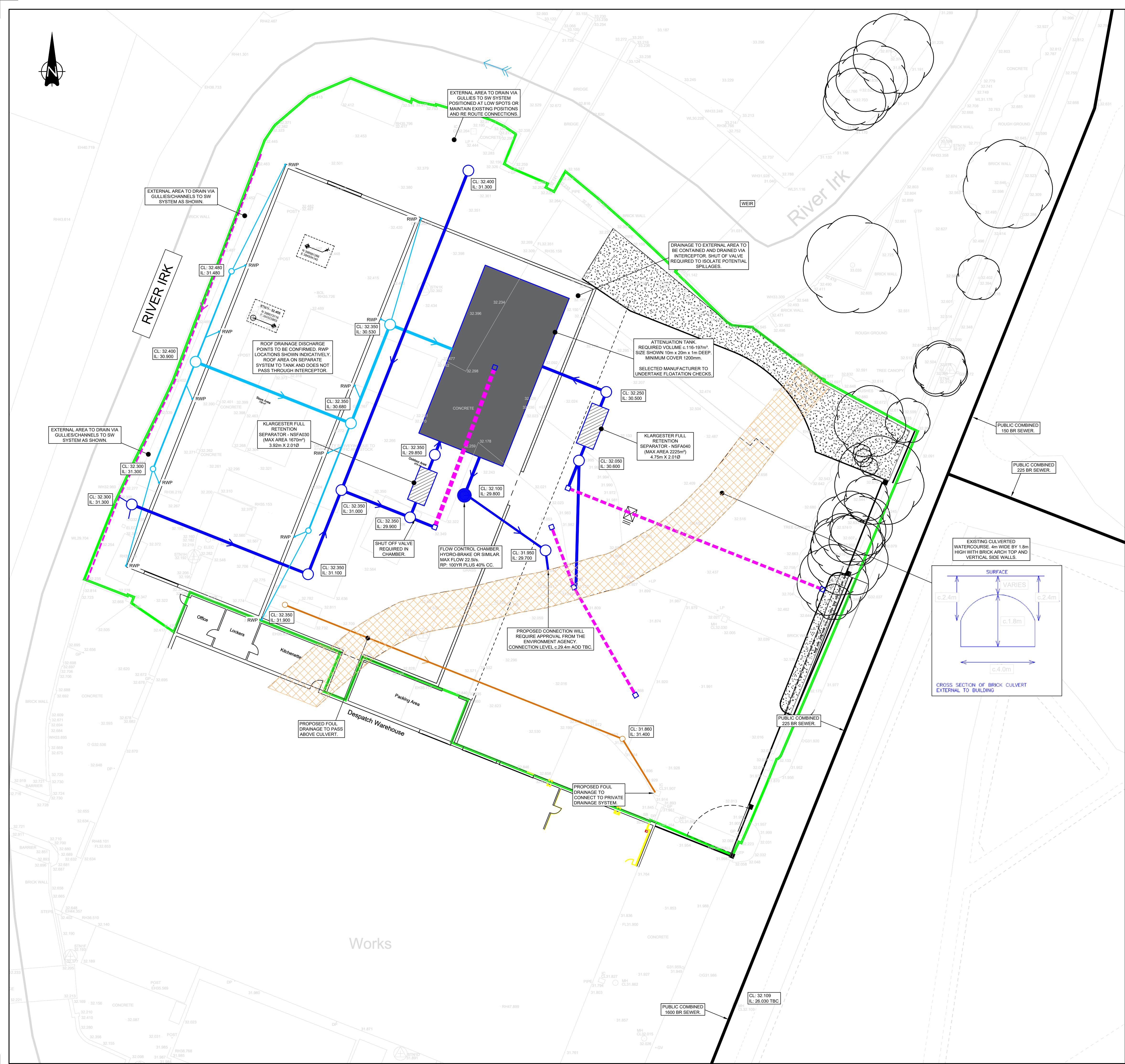
Client	HMG PAINTS LTD
Project	HMG PAINTS, MANCHESTER
Office	ALTRINCHAM
Discipline	CIVIL AND STRUCTURAL
Title	SITE SECTIONS SHEET 2 OF 2
Scale @ A1	AS SHOWN
Status	PRELIMINARY



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Job Number	Originator	Building/Zone	Level
1/21268	CCL	00	00
Type	Discipline	Drawing No.	Revision
DR	C	003	P02

Appendix I – Drainage Strategy



SITE BOUNDARY	
EX PUBLIC COMBINED SEWER	
PROPOSED SW DRAINAGE	
PROPOSED SW ROOF DRAINAGE	
PROPOSED FW DRAINAGE	
PROPOSED ATTENUATION	
PROPOSED HEAVY DUTY LINEAR CHANNEL	
PROPOSED INTERCEPTOR	
MOSTON BROOK SUB-SURFACE CULVERT ALIGNMENT	

INFILTRATION

WHEN DESIGNING A SOAKAWAY DRAINAGE SYSTEM, ALLOWING SURFACE WATER RUNOFF TO BE COLLECTED AND DISCHARGED INTO THE GROUND, 1m CLEARANCE IS REQUIRED FROM THE BASE OF THE DRAINAGE SYSTEM TO THE WATER LEVEL. THE BASE OF DRAINAGE SYSTEM IS EXPECTED TO BE c.2.5m BGL WHEN PROVIDING SUFFICIENT LOADING COVER TO THE SYSTEM (CL: 32.2m AOD - 2.5m DEPTH = IL: 29.7m AOD). MEETING THE REQUIREMENT OF PROVIDING 1m CLEARANCE ABOVE THE GROUND WATER LEVEL, ISN'T FEASIBLE.

INFILTRATION TESTING HAS NOT BEEN CARRIED OUT FOR THIS SITE. INFILTRATION HAS BEEN CONSIDERED HOWEVER DEEMED NOT APPROPRIATE DUE TO THE RISK OF SATURATING THE LAND BEHIND THE RIVER WALL AND THE IMPLICATIONS THIS COULD HAVE ON THE DEVELOPMENT AND THE RIVER, SHOULD THE WALL FAIL. ALSO, DUE TO THE LACK OF SUPERFICIAL DEPOSITS AND POTENTIAL FOR SIGNIFICANT CONTAMINATION TO BE PRESENT AT THE SITE

DISCHARGE TO WATERCOURSE
PROPOSED DISCHARGE LOCATION IS CULVERTED
WATERCOURSE WITHIN THE DEVELOPMENT BOUNDARY

PROPOSED DISCHARGE LOCATION IS CULVERTED
WATERCOURSE WITHIN THE DEVELOPMENT BOUNDARY

DISCHARGE TO COMBINED SEWER - N/A.

EXISTING DRAINAGE

SURFACE WATER DESIGN

THE PROPOSED DEVELOPED IS TO BE RESTRICTED TO 50% OF EXISTING FLOWS.

MAX SW FLOW RATE: 22.5 l/s.

APPROXIMATE STORAGE REQUIREMENT: c.116-197m³

OUTFALL: EXISTING CULVERTED WATERCOURSE SUBJECT TO AGREEMENT WITH THE EA.

LEVELS INDICATE THAT PUMPING WILL NOT BE REQUIRED

POLLUTION TREATMENT: FULL RETENTION SEPARATORS

SUSTAINABLE DRAINAGE PROPOSALS:

- FLOW RESTRICTIONS AND ATTENUATION TANK.

INFILTRATION IS NOT CONSIDERED APPROPRIATE FOR THIS SCHEME

FLOW CONTROL CHAMBER PROVIDED PRIOR TO DISCHARGING OFF

HYDRO-BRAKE OR SIMILAR TO BE PROVIDED TO RESTRICT FLOWS.

ATTENUATION

REQUIRED STORAGE VOLUME TO BE ATTENUATED WITHIN ATTENUATION TANK = MAX 197m³ BASED ON 1:100 YR PLUS 40% CLIMATE CHANGE

STORAGE SIZE SUBJECT TO DETAILED DESIGN = 10m x 20m x 1m

FOUL WATER DESIGN

EXISTING FOUL DRAINAGE FROM THE EXISTING BUILDING TO REMAIN EXISTING.

PROPOSED FOUL FLOWS TO BE CONNECTED TO THE EXISTING PRIVATE
DRAINAGE SYSTEM OR PUBLIC SEWER SUBJECT TO SURVEY.

ANY PROPOSED FLOWS FROM NEW DEVELOPMENT TO BE CONFIRM

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
2. DESIGN BASED ON TOPOGRAPHICAL SURVEY AND CCTV SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
3. ALL EXISTING SERVICES, CONNECTIONS, PIPE SIZES AND INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORK. TO ENSURE CONNECTIVITY, ANY VARIANCE FROM THE INFORMATION SHOWN SHOULD BE REPORTED TO THE ENGINEER FOR REVIEW.
4. DO NOT SCALE THIS DRAWING, ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
5. ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
6. WHERE EXISTING DRAINAGE IS BEING USED, ALLOWANCES SHOULD BE MADE TO REMEDIATE THIS DRAINAGE IN LINE WITH AVAILABLE CCTV SURVEY INFORMATION. IF NO SURVEY IS AVAILABLE, IT IS ADVISED TO OBTAIN ONE PRIOR TO COMMENCEMENT OF WORKS.
7. ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS, AND WHERE NECESSARY PROTECTION OR DIVERSIONS TO BE UNDERTAKEN TO AVOID CONFLICT WITH THE PROPOSED WORK.
8. ALL RAINWATER AND FOUR POP UPS LOCATIONS TO BE CONFIRMED BY THE ARCHITECT AND M/E ENGINEER.
9. COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/LANDSCAPE ARCHITECT.
10. ALL PIPE DIMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIMETERS. THESE ARE TO BE CONFIRMED ONCE A DETAILED CAPACITY CHECK HAS BEEN UNDERTAKEN AT A LATER DESIGN STAGE.
11. OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.
12. DRAINAGE DESIGN IS INDICATIVE ONLY TO DEMONSTRATE DRAINAGE INTENT AND IS SUBJECT TO DETAILED DESIGN, HYDRAULIC MODELING AND APPROVAL BY RELEVANT AUTHORITIES.

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Client	HMG PAINTS LTD		
Project	HMG PAINTS - MANCHESTER		
Office	ALTRINCHAM		
Discipline	CIVIL AND STRUCTURAL		
Title	DRAINAGE STRATEGY		
Scale @ A1	1:200	Status	PRELIMINARY



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Job Number	Originator	Building/Zone	Level
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Type	Discipline	Drawing No.	Revision
DR	C	010	P02